

A SHORT GUIDE
TO
THE NEW
BRITISH PHARMACOPŒIA
1898.

BY
JOHN C. UMNEY.

PRICE ONE SHILLING.

WRIGHT, LAYMAN & UMNEY,
SOUTHWARK, LONDON, S.E.

This book is to be returned on or before
the last date stamped below.

1/02/90

LIBREX -

S

UNIVERSITY OF LONDON

ERRATUM.

Page 8.—Acid Carbolic ... Solubility in cold water—
1 in 12; *not* 1 in 1200.

[ENTERED AT STATIONERS' HALL]

LIBRARY

THE SCHOOL OF PHARMACY

A SHORT GUIDE
TO
THE NEW
BRITISH PHARMACOPŒIA
1898.

BY
JOHN C. UMNEY.

PRICE ONE SHILLING.

WRIGHT, LAYMAN & UMNEY,
SOUTHWARK, LONDON, S.E.

REFERENCE

ONLY

LIBRARY

SCHOOL OF PHARMACY
UNIVERSITY OF LONDON

INDEX.

	PAGE		PAGE
Acids	14	Liniments	29
Additions	4	Liquores—Chemical	30
Alcohols	15	„ —Galenical	33
Alkaloids	17	Lozenges	34
Alterations (Principal)	5	Mixtures	34
Animal Products	18	Mucilages	35
Chemicals	7	Nomenclature	5
Chemicals (Synthetic)	12	Oils—Essential	19
Collodions	18	„ —Fixed, Fats, Waxes, &c.	24
Confections	18	Ointments	35
Decoctions	18	Oleates	38
Discs	18	Omissions	4
Doses	5	Oxymels	38
Drugs	12	Pills	38
Elixirs	19	Plasters	39
Essences	19	Poultices	39
Ethers, Esters, and Volatile Solvents, &c.	23	Powders	39
Extracts (Liquid)	29	Spirits,	42
„ (Solid)	40	Standardization	6
Glycerines	26	Suppositories... ..	43
Granular Effervescent Prepara- tions	27	Synonyms	5
Honeys	27	Syrups... ..	43
Imperial Character	3	Tinctures	44
Infusions	27	Tests	6
Injections	28	Vinegars	50
Introduction	3	Waters	50
		Weights and Measures	3
		Wines	51

TABLES.

	PAGE		PAGE
1. Solubility requirements (Chemicals, &c.)	8	5. Alcohols—Descriptions	16
2. Minimum Extractive Re- quirements (Drugs, &c.)... ..	12	6. „ Dilution	16
3. Percentages of Ash	13	7. Essential Oil Characters	20
4. Alterations in Botanical Sources	13	8. Infusions	28
		9. Ointments	36
		10. Tinctures	46

A SHORT GUIDE

TO THE

NEW BRITISH PHARMACOPŒIA, 1898

GENERAL INTRODUCTION.

Although the new British Pharmacopœia (1898) is not actually published, a few details of publication, &c., not yet having been completed by the Treasury, the Medical Council have, nevertheless, placed at their offices advance copies for the convenience of wholesale druggists, manufacturers, and others; and I now submit the following short account of the principal alterations contained in it, in the hope that it may be of service as a guide to the retail pharmacist and medical man in the study of so important a work.

IMPERIAL CHARACTER.

It was proposed in the first instance to adapt the new edition of the Pharmacopœia to the use of the colonies and dependencies by introducing alternatives of many of the drugs now official suitable to their varying requirements, and with this object in view suggestions were sought from various colonies.

It has not been found, however, apparently practicable to include these at the end of each of the monographs of the respective drugs, and a few alternatives and modifications of formulæ find a place in the Appendix at the end of the work, whilst an addendum embodying further alternatives is promised in the preface to the work.

WEIGHTS AND MEASURES.

Metric as well as imperial weights and measures have been included in all monographs (and "proportional parts" omitted), not in every case the exact equivalents, but with the intention that either the imperial or the metric weights and measures shall be followed in their entirety for the manufacture of any one preparation.

In the Appendix, however, and for all analytical processes, the metric system alone is followed.

Confusion may possibly arise from, in some instances, the measuring of liquids, and in others weighing, and although I believe, as a general principle, only those liquids have been ordered to be weighed where weighing is decidedly

more convenient, still it will be safer to be guided by the words in the metric column, viz., by the expression grammes or cubic centimetres, which is decidedly more explicit than the ounce or fluid ounce of the imperial system.

ADDITIONS.

It cannot be said that the additions to the New Pharmacopœia include any other than well tried Drugs, Chemicals and galenical preparations.

The only new Drugs official are Virginian Prune Bark and Quillaia Bark, together with Araroba (Crude Goa powder) and fresh Orange Peel.

The Chemicals introduced are Salicylate of Bismuth, Naphthol and Salol.

Alkaloids and Alkaloidal Salts—Phosphate of Codeine, Hydrobromide of Hyoscine, Sulphate of Hyoscyamine, Tartrate of Morphine, Sulphate of Physostigmine, Acid Hydrochloride of Quinine, and Hydrochloride of Strychnine.

Additions have also been made to the galenical preparations, amongst the Liquid and Solid Extracts, Glycerines, Suppositories, Syrups and Tinctures, as well as a new class of preparations, Liquores corresponding to the Concentrated Infusions. There is no necessity to detail these, as a list of these substances and preparations will be found in the introduction to the Pharmacopœia.

Organothrapy is represented by dried Thyroid gland and a Solution prepared by Glycerine.

OMISSIONS.

The omissions have been based upon the analysis of numerous prescriptions published by Martindale and others, and the results of an enquiry instituted by the Medical Council by means of a chart sent to a considerable number of medical practitioners in this country for their opinion as to the frequency of use of the various preparations.

Over 5,600 medical men replied to this enquiry, and the views of the majority of these have been followed in the omissions in most cases, but it is worthy of remark that the following preparations are still included, although returned in 90 per cent. of these replies as "never" prescribed :—

Ammon Phosphas	Ol. Anthemidis
Ext. Anthemidis	Ol. Phosphoratum
„ Cimicifug. Liq.	Syrup Hemidesmi
„ Jalapæ	Tinct. Croci
Inf. Cuspariæ	„ Pyrethri
„ Serpentariæ	Troch Ferri redact
Lupulinum	

It will be noticed that no Monographs are included for Dietetic Articles, and amongst those omitted may be quoted Vinegar, Soda Water, Potash Water, Honey, &c.

The characters and tests of the last-named are included under Mel Depuratum

The Cataplasmata, Enemata, Essentiæ and Vapores, are all omitted.

PRINCIPAL ALTERATIONS.

The following may be briefly noted as some of the principal alterations in the New Pharmacopœia, and will be alluded to subsequently.

Alcohols varying in strength from 90 to 20 per cent. by volume have been introduced in place of the old Rectified and Proof Spirit.

Belladonna and **Ipecacuanha** Preparations are all standardized.

Easton's Syrup Formula included, but no syrups corresponding to Fellows' and Parrish's.

Infusions in concentrated form, 1 to 9, introduced as Liquores.

Liquorice Root.—Peeled only official.

Morphia Injection and Suppositories are practically halved in strength.

Nux Vomica Preparations standardized to Strychnine strength, and not total alkaloids.

Saffron is omitted in Pil Aloes et Myrrh, Pulv Cretæ Arom, and Tinct. Rhei Co., but still included in Dec Aloes Co. and Tinct. Cinchonæ Co.

Solutions that were approximately 1 per cent. now made accurate.

Tincture Processes are now set out in an Appendix, and not repeated in each monograph. Strengths of active ingredients and alcohols much altered.

Essential Oils.—No specific place of cultivation or distillation included—not even English Peppermint and Lavender oils being required.

NOMENCLATURE.

Many of the preparations have been re-named, but the alterations are not by any means important.

The green Extracts of Belladonna and Henbane have had the word "Viride" added to them, and amongst other minor alterations Tinctures of Rhubarb and Tinctures of Senna have been re-named respectively Compound Tinctures.

All Hydrochlorates are now named Hydrochlorides and Hydrates Hydroxides, and Solutions that were described as Fortior, such as Ammonia and Ferri Perchlor, are now re-named Fortis, and the English names of chemicals made to accord with the latest chemical science.

Synonyms have not been increased to any extent, the most important being Milk of Sulphur for Precipitated Sulphur, and Sweet Spirit of Nitre for Spirit of Nitrous Ether.

DOSES.

Doses are still appended to the various monographs without responsibility, but as guides for the Medical man and Chemist. Very many of these have been altered: more especially is this the case in the Tinctures where the strengths have been modified in order to permit of uniformity of dose for the potent and other Tinctures, whilst unification of the doses has been adopted largely in the Decoctions, Mixtures, Pills, &c.

Different Doses are also stated in some cases for single or repeated administration.

TESTS, &c.

The tests for common impurities, and also recognition tests, are contained in the Appendix, and not repeated in each monograph, making a conciseness which will be doubtless appreciated.

It will be observed also that the Standard Volumetric Solutions are altered in accordance with the latest determinations of atomic weights.

STANDARDIZATION.

STANDARDIZATION has not been carried out in the new British Pharmacopœia to the extent that many have doubtless expected, but, in my opinion, the Committees that have had charge of the compilation of the Pharmacopœia have been wise in their acceptance only of the standardization of such drugs as admit of accurate standardization based upon complete chemical knowledge of the principles, and in which the action of the drug is dependent entirely upon these one or more bodies capable of accurate determination.

Belladonna and Ipecacuanha preparations are now standardized, in addition to the Drugs standardized in the British Pharmacopœia of 1885.

In the former case a fluid extract containing 0·75 per cent. of total alkaloids is made the basis for the preparation of a solid extract, liniment, tincture and plaster and ointment. The alcoholic strength of the solvent used in the liquid extract is slightly stronger than that of the U.S.P., a preparation which has been much used latterly by medical men and Pharmacists.

The solid extract prepared from this Liquid Extract has an alkaloidal strength of 1 per cent., and is approximately of the same strength as the green extract which has been retained unstandardized, and which, according to the observations of various workers, varies in alkaloidal value between '9 and 1·2 per cent., the doses being identical.

The standardization of Emplast Belladonna is a distinct advance, and the probability is that we shall have now heard the last of complaints of its blistering effect, which have been heard frequently during the currency of the last Pharmacopœia. This blistering, no doubt, has been due, in small part, to the idiosyncrasy of the patient, but in greater degree to the variability in alkaloidal strength of the Extract of Belladonna, from which the plaster has been prepared.

Ipecacuanha Preparations.—The investigations of Paul and Cownley on the alkaloids of the two commercial varieties of Ipecacuanha have made a very important advance possible upon the results published by Braithwaite and myself on standardized liquid extract of Ipecacuanha.

These researches have revealed that although the two alkaloids, Emetine and Cephaeline, exist in both the Rio and Carthagena varieties, yet the ratio that they bear to one another is not sufficiently similar to allow galenical preparations of the one or other to be used interchangeably. Their physiological examination by Dr. Wild, moreover, has revealed that although the effects of the two alkaloids are in some respects similar, they are

not so completely so as to make it advisable to have a liquid extract of simply *total alkaloidal* strength prepared from either variety.

In my opinion, therefore, the compilers have done wisely to select the Rio variety, in which the proportions of Emetine and Cephaeline are usually about equal.

The preparations that have been made official consist of a Liquid Extract standardized to contain 2 per cent. of total alkaloids (which is practically the strength of good Rio root), a wine prepared by dilution of this liquid extract in the proportion of one part to 19 parts of Sherry, and a vinegar of the same strength. Reference to all of these will be made subsequently.

An important extension has been made in the standardization of extract of **Nux Vomica**. The percentage of total alkaloids, Strychnine and Brucine, has been replaced by an accurate standardization of the extract according to its Strychnine percentage, and in view of the very great difference in the potency of Strychnine and Brucine it is certainly highly desirable.

The solid extract contains 5 per cent. of Strychnine. The ratio of alkaloids differs in different varieties of Nux Vomica, but the practical outcome is that the present extract is about 2-3rds of the Strychnine strength of the Extract of Nux Vomica of the British Pharmacopœia of 1885.

In addition to the solid extract a liquid extract is also included, containing 1.5 parts of strychnine in 100 fluid parts, and from this the tincture is prepared in place of from the solid extract.

This liquid extract differs from that of the U.S.P., which contains acetic acid and has only the total alkaloidal strength that this has strychnine value.

Advance has also been made in the final standardization of galenical preparations made from the standardized drugs **Opium and Cinchona**, and this is a most important advance, because the solvents used for the various preparations were different to those used in the assay of the original drug; and in the case of cinchona it has been shown repeatedly that only about 75 to 90 per cent. of alkaloid present was extracted by proof spirit, whilst in the case of opium the tincture prepared by the Pharmacopœial process has always been weaker than the original morphine assay of the opium indicated.

CHEMICALS.

I have not thought it desirable, in the narrow limit of these few pages, to refer in detail to the chemicals of the New British Pharmacopœia, the only metallic salt that is now introduced for the first time being Salicylate of Bismuth.

Many of the salts formerly official are omitted, and the omissions might probably have been carried very considerably further.

The processes of manufacture are in many cases omitted or much condensed, or so framed as to leave the particular process to the choice of the operator.

One feature of the New Pharmacopœia, however, is the inclusion of definite solubilities in various solvents of very many of the chemicals, and these have been included in a handy tabular form.

TABLE No. I.—SOLUBILITY OF CHEMICALS, &c.

	Cold Water.	Boiling Water.	Alcohol 90%	Ether.	Chloroform.	Glycerine.
Acetanilid	1 in 200	1 in 18	1 in 4	Freely Soluble	Freely Soluble	1 in 5
Acid Arsenios	1 in 100	1 in 10	...	...	...	...
" Benzoic	1 in 400	1 in 17	1 in 3	1 in 2½	1 in 7	1 in 4
" Boric	1 in 30 (?)	1 in 3	1 in 30	...	...	Freely Soluble
" Carbolic	1 in 1200	...	Freely Soluble	Freely Soluble	Freely Soluble	...
" Citric	1 in ¾	1 in ½	{ Slightly less } Soluble }	Slightly Soluble	...	...
" Gallic	1 in 100	1 in 3	1 in 5	1 in 40	...	1 in 12 (?)
" Salicylic	1 in 500	1 in 15	1 in 3	1 in 2	...	1 in 200
" Tannic	1 in 1	...	1 in 1	...	...	1 in 1
" Tartaric	Less than 1 in 1	...	Less than 1 in 3	...	...	Freely Soluble
Alum	1 in 10	1 in ¾	Insoluble	...	...	1 in 8
Ammon. Benz	1 in 6	...	1 in 30	...	...	...
" Carb.	1 in 4	...	1 in 60	...	...	...
" Chloride	1 in 3	...	Insoluble	...	...	...
" Phosph.	1 in 4	...	Almost Insoluble	...	...	...
Antimonium Tartaratum	1 in 17	1 in 3	Almost Insoluble	...	...	...
Ap'morph. Hydrochlor.	1 in 50	...	More Soluble	Soluble	...	Soluble
Argent Nitras	Less than 1 in 1	...	Slightly Soluble	Readily Soluble	Readily Soluble	...
Atropine	1 in 300	...	Readily Soluble	Insoluble	Insoluble	1 in 1
" Sulph.	1 in 1	...	1 in 10	...	...	1 in 1
Borax	1 in 25	1 in ½	Insoluble	...	...	...
Butyl Chloral Hydrate	1 in 50	...	1 in 1	...	1 in 20	...
Caffeina	1 in 80	...	Easily Soluble	Springly Soluble	Easily Soluble	...
" Citras	1 in 32	...	...	...	...	...
Calcii Chloride	1 in 1	...	1 in 3	...	...	...
" Hypophos.	1 in 8	...	Insoluble	...	1 in 4	1 in 4
Camphor	1 in 700	...	About 1 in 1	Very Soluble	1 in 4	1 in 4
Chloral Hydrate	Less than 1 in 1	...	Less than 1 in 1	Less than 1 in 1	1 in 4	1 in 4
Cocaina	Almost Insoluble	...	1 in 10	1 in 4	1 in 4	Insoluble

TABLE NO. I.—SOLUBILITY OF CHEMICALS, &c. (continued).

	Cold Water.	Boiling Water.	Alcohol 90%	Ether.	Chloroform.	Glycerine.
Cocaine: Hydrochlor. ...	1 in $\frac{1}{2}$	...	1 in 4	Almost Insoluble	...	1 in 4
Codeina ...	1 in 80	...	Readily Soluble	1 in 30	Readily Soluble	
" Phosphate ...	1 in 4	...	Much less Soluble		...	
Creosote ...	1 in 400	...	Freely Soluble	Freely Soluble	...	Very Soluble
Cupri Sulph. ...	1 in 3 $\frac{1}{2}$	...	Almost Insoluble	...		
Ferri et Ammon. Cit ...	1 in $\frac{1}{2}$	...	Almost Insoluble			
Ferri et Quin. Citras ...	1 in $\frac{1}{2}$...				
Ferri Sulphas ...	Less than 1 in 2	...				
Glusidum ...	1 in 400	1 in 24	Insoluble	Slightly Soluble	Slightly Soluble	
Homatropinæ Hydrobrom ...	1 in 6	...	1 in 25			
Hyd. Perchlor. ...	1 in 16	1 in 2	1 in 133 absolute			
Hyoscine Hydrobrom ...	1 in 1	...	1 in 3	1 in 4	...	1 in 2
Hyoscyaminæ Sulph. ...	1 in $\frac{1}{2}$	...	1 in 2 $\frac{1}{2}$	Very Slightly Soluble	Very Slightly Soluble	
Iodoform ...	Very Slightly Soluble	...	1 in 80 cold	Very Slightly Soluble	Soluble	
Iodine ...	1 in 5000	...	1 in 10 boiling	1 in 5	Freely Soluble	
Lithii Carb. ...	1 in 70	...	Freely Soluble			
" Cit. ...	1 in 2	...	Insoluble			
Mag. Sulph. ...	1 in 1	...				
Morphinæ Acet. ...	1 in 2 $\frac{1}{2}$	...	1 in about 100			
" Hydrochlor ...	1 in 24	1 in 1	1 in 50			
" Tartaras ...	1 in 11	...	Almost Insoluble			
Naphthol ...	1 in 1000	1 in 75	Less than 1 in 2	Very Soluble	Very Soluble	
Paraldehyd. ...	1 in 10	Less Soluble	All proportions	All proportions		
Pepsin ...	{ Moderately Soluble }	...	1 in 100			
"	{ Very sparingly Soluble }	More freely				
Phenacetin ...	{ Soluble }	...	1 in 20			
Phenazone ...	{ Very sparingly Soluble }	...	1 in $\frac{1}{3}$	1 in 40	1 in 1 $\frac{1}{2}$	
Phosphorous ...	Insoluble	...	1 in 350 absolute	1 in 80	1 in 25	

TABLE NO. I.—SOLUBILITY OF CHEMICALS, &c. (continued).

	Cold Water.	Boiling Water.	Alcohol 90%	Ether.	Chloroform.	Glycerine.
Picrotoxin	1 in 330	1 in 35	{ 1 in 13, cold } { 1 in 3, boiling }			
Pilocarpin Nit.	1 in 8 or 9	...	{ Slightly Solu- } { ble, cold }			
Plumbi Acet.	Less than 1 in 3	...	{ Freely Solu- } { ble, boiling }			
" Iodid.	1 in 2000	1 in 200	1 in 30			
Pot. Caustic	1 in $\frac{1}{2}$	...	1 in 2			
" Acet.	1 in $\frac{1}{2}$	...	1 in 2			
" Bicarb.	1 in 4	...	Almost Insoluble			
" Bichrom.	1 in 10	...				
" Bromide	1 in 2	...	1 in 200			
" Carb.	1 in 1	...	Insoluble			
" Chlor.	1 in 16	1 in 3				
" Citras	Very Soluble	...				
" Iodid.	Less than 1 in 1	...	1 in 12			
" Nitras	1 in 4	1 in $\frac{1}{2}$				
" Permang.	1 in 20	1 in 4	Insoluble			
" Sulph.	1 in 10	...				
" Tart.	1 in 1	...				
" " Acid	1 in 200	...	Insoluble			
Quin. Hydrochlor.	1 in 35	Very Soluble	{ 1 in 3 cold, } { Very Soluble, } { boiling }			
" " Acid...	Less than 1 in 1					
" Sulphas.	1 in 800					
" Sacch. Lact.	1 in 7	1 in 1				
" Purific.	1 in $\frac{1}{2}$...				
Salicine	1 in 28	...	1 in 60	Insoluble		

CHEMICALS (SYNTHETIC).

None are official that were not contained in the Pharmacopœia of 1885, or the Addendum of 1890, with the exception of salol, the use of which is so well established that its inclusion was inevitable, and beta-naphthol.

The characters and tests for both of these substances are answered by pure specimens of commerce.

Acetanilid.—It will be noticed that the melting point is now 236·5° F. (113·5° C.), and not 235° F. (112·8° C.), as stated in the Addendum, 1890, and precaution given for thoroughly drying the salt before determining the melting point.

DRUGS, &c.

No drugs are official that were not contained either in the 1885 Pharmacopœia or the additions of 1890, with the exceptions of Araroba, Fresh Orange Peel, Caoutchouc, and Quillaia Bark. Of these Araroba powder was given as a synonym for Purified Chrysarobin by error in the 1885 edition.

Many alterations have been made in the botanical sources of the drugs, due either to the following in the present edition of the "Kew Index," or to increased knowledge, which has enabled botanists and investigators to refer the drugs to the botanical species more exactly than heretofore; in some cases limitations of species have been made, as in the case of Buchu, whilst Peeled Liquorice Root only is official. A table (No. 4) of these alterations is appended for convenience of students.

Percentages of ash have been included in the cases of many drugs, &c., where such ash may be of service in the detection of impurities or as a means of determining quality, which for convenience are tabulated (No. 3).

And in many instances also definite requirements have also been framed as to the solubility in alcohol, water, or other solvents (No. 2):—

TABLE NO. 2.

MINIMUM EXTRACTIVE REQUIREMENTS OF DRUGS.

				Per cent.	
Aloes Barb	...	...	...	70	Cold water
„ Socot	...	...	...	50	„ „
Araroba	...	...	...	50	Hot Chloroform
Asafetida	...	...	...	65	Alcohol (90 p.c.)
Catechu	...	...	...	70	„ „
Elaterium	...	...	...	20	Chloroform, &c. (Elaterin)
Eucalypti Gummi	...	...	...	80	Cold water
Jalapa	...	...	...	9	Alcohol 90 p.c.
Kino	...	...	...	80	Boiling water
Lupulin	...	...	...	60	Ether
Scammonium	...	...	...	70	Ether

TABLE NO. 3.
LIMIT OF ASH OF DRUGS.

Acaciæ Gummi ...	4 per cent.	Colocynthis pulpa ...	9 per cent.
Asafetida ...	10 "	Crocus ...	7 "
Cambogia ...	3 "	Gossypium ...	1 "
Capsicum ...	6 "	Linum contusum ...	5 "
Carbo Ligni ...	7½ "	Lupulinum ...	12 "
Cardamomi Semina ...	4 "	Mel Depuratum ...	0.2 "
Carui fruct ...	8 "	Moschus ...	8 "
Caryophyllum ...	7 "	Podophylli resina ...	1 "
Catechu... ..	5 "	Saccharum lactis ...	0.25 "
Chrysarobinum ...	1 "	Scammonium ...	3 "
Coccus ...	6 "	Succus Limonis ...	3 "

TABLE NO. 4.
Table of ALTERATIONS in BOTANICAL SOURCES of DRUGS

DRUG.	SOURCE, B.P. 1885.	SOURCE, B.P. 1898.
Aconiti Rad ...	Aconitum Napellus ...	Aconitum Napellus, grown in Britain <i>only</i>
Aloe Barbadensis ...	Aloe Vulgaris ...	Aloe vera. Aloe chinensis and other species
Asafetida ...	Ferula Narthex ...	Ferula foetida
Aurantii Cortex ...	Citrus Vulgaris (Risso) „ Bigaradia (Duhamel)	Citrus Aurantium var Bigaradia
Buchu folia ...	Barosma betulina ... „ crenulata ... „ serratifolia ..	Barosma betulina only
Capsici fructus ...	Capsicum fastigiatum ...	Capsicum minimum
Chirata ...	Ophelia chirata ..	Swertia Chirata
Cocæ folia ...	Erythroxylon Coca ...	Erythroxylum Coca and its varieties
Coccus ...	Reared on Opuntia Cochinillifera ...	Reared on Nopalea Coccinellifera
Cusparia Cortex ...	Galipea Cusparia ...	Cusparia febrifuga
Cusso ...	Hagenia Abyssinica ...	Brayera anthelmintica
Galla ...	Quercus lusitanica var infectoria	Quercus infectoria
Ipecacuanha ...	Cephaelis Ipecacuanha	Psychotria Ipecacuanha
Jaborandi folia ...	Pilocarpus pennatifolius	Pilocarpus Jaborandi
Kramerizæ Cortex ..	Krameria triandra ... „ ixina ...	Krameria argentea „ triandra
Limonis Cortex ...	Citrus Limonum ...	Citrus medica var Limonum
Mezerei Cortex ...	Daphne Mezereum ... „ Laureola ...	Daphne Mezereum „ Laureola „ Gnidium
Ol. Cajuputi ...	Melaleuca minor ...	Melaleuca leucadendron
Pix burgundica ...	Pinus picea ... Abies excelsa ...	Picea Excelsa
Sarsæ radix ...	Smilax officinalis ...	Smilax ornata
Strophanthus ...	Strophanthus Hispidus var Kombé ...	Strophanthus Kombé
Terebinthina Canadensis	Pinus Balsamea ..	Abies balsamea

ACIDS.

Two Acids only have been omitted from those official in the 1885 edition, namely, dilute Lactic Acid and Meconic Acid. The former was very little used, and the latter only official for the preparation of Liq. Morphinæ Bimeconatus. As the acid, however, is practically inert, the combination, though a natural one, had no great advantages.

Acid Acetic.—The test for the limit of empyreumatic matter, contained in the United States Pharmacopœia and German Pharmacopœia, has been made official, with slight modification. It is an important one, as samples of Acetic Acid, more especially of English manufacture, differ very considerably in this character.

Benzoic Acid.—The artificial acid prepared from toluene and hippuric acid is now made official, and the characters and tests are amplified so as to include where possible the two varieties. The pure acid prepared from Benzoin by sublimation differs slightly from the chemically pure acid obtained synthetically. The former melts at a slightly lower temperature, and although one solubility only in water is stated, namely, 1 in 400, it is found that there is considerable difference in the solubilities of the natural and synthetic acids; the Natural acid being soluble in about 1 in 370 (see German Pharmacopœia III.), whilst the Artificial acid is only soluble about 1 in 500 (See U.S.P.). The tests of the U.S. and German Pharmacopœias for the absence of Cinnamic Acid are now included.

Acid Carbolic.—An important alteration is made in this substance. The melting point has been raised from 91·5° F. (33° C.) to 102° F. (38·8° C.), and the boiling point has been lowered in accordance, namely, from not higher than 371° F. (188·3° C.) to not higher than 359·6° F. (182° C.). This is an alteration that has been suggested by all Pharmacists in commenting on the Brit. Pharmacopœia. It is now not absolute Phenol which is official in the German Pharmacopœia, the melting point being given as from 40° to 42° C.

Acid Carbolic Liquefactum.—This Acid is directed to be made by the addition of 10 parts of distilled water to 100 parts by weight of Phenol, and differs therefore from that of the 1885 Pharmacopœia, the monograph for which has been always understood to be 90 parts of Carbolic Acid and 10 parts of water.

Acid Citric.—The strength of the aqueous Solution corresponding to an average sample of Lemon Juice has been altered in accordance with the amended monograph for the latter. A slight modification of Warrington's test for the limit of lead has been adopted. The test for the absence of Tartaric Acid can hardly be considered satisfactory, as it is not uncommon to find metallic particles present in Citric Acid, and this, as shown by the foot note in the Pharmacopœia, makes a considerable difference in the application of the test.

Acid Hydrobromic Dil.—The process for the preparation of this acid has been altered, that of distillation of Potassium Bromide with concentrated Phosphoric Acid being now official in place of the Sulphuretted Hydrogen and Bromine process. It is a distinct advantage, as the acid prepared

by the process of the 1885 Pharmacopœia frequently contained sulphuretted compounds of objectionable odour.

The specific gravity is retained as in the British Pharmacopœia of 1885 and the United States Pharmacopœia of 1890 indicating that the doubts thrown by Squibb on the specific gravity of this preparation were not justified.

Acid Hydrochloric.—The strength is now stated exactly, namely, 31·79 per cent., instead of about 32 per cent.

Acid Hydrochlor. Dil.

Acid Nitric Dil.

Acid Sulph. Dil.

} It is a pity that the directions for these Acids are not for their preparation by weight.

Cooling all the preparations to 60° F. (15·5° C.) in order to take their bulk is not by any means convenient. It should be noted that instructions are given for the mixing of these preparations by weight in the U.S.P.

Acid Hydrocyanic Dil.—A requirement has been added that the Acid shall give only the slightest reactions for Chlorides. This will prevent the addition of Hydrochloric Acid to this Acid, which is the method that has been adopted by certain manufacturers with a view to a better preservation of the acid.

Acid Oleic.—The specific gravity is altered from “·860 to ·890” to “·890 to ·910,” but the majority of commercial samples will be found to fall within the new limits. The process for the detection of Stearic and Palmitic Acids is a much improved one.

Acid Phosphoric Conc.—Specific gravity 1·5. It is not clear why the stronger acid—namely, specific gravity 1·75—should not have been introduced, more especially as it is used in the cineol tests of Cajeput and Eucalyptus Oils.

Acid Salicylic.—The characters have been altered in accordance with the later researches on the subject. The melting point has been raised from 311° F. (155° C.) to from 312·8° to 314·6° F. (156° to 157° C.). New tests are also added for the absence of Organic Impurities.

Acid Sulph. Aromat.—The preparation has been changed in accordance with the alteration of Tincture of Ginger, and a proportionate quantity of Tincture of Ginger ordered in place of the smaller quantity of the stronger Tincture of the 1885 Pharmacopœia. The proportion of spirit of Cinnamon is altered also in accordance with the increased strength of that preparation.

Acid Tartaric.—The same test has been included for the limit of lead as in Citric Acid, and the requirement has also been added that the Acid shall not yield more than 0·05 per cent. of ash.

ALCOHOLS.

Absolute Alcohol.—The requirements of the new Pharmacopœia are that not more than 1 per cent. by weight of water shall be present, that is to say, a specific gravity of ·794 to ·7969 in place of ·797 to ·800. The last named allowed the presence of 2 per cent. of water in the B.P., 1885.

Alcohols of different strengths.—Alcohols of different percentage strengths by volume have now been adopted as the menstrua for tinctures and other galenical preparations. These alcohols of definite strengths by volume are in accordance with the methods of the French Codex, and are to be much preferred to mixtures of strong alcohol and water in varying proportions. Five different strengths of these alcohols are made official, the one containing 90 per cent. by volume, which still retains the name of rectified spirit, and four diluted alcohols containing 70, 60, 45 and 20 per cent. of Ethyl Hydroxide by volume.

The name of rectified spirit has been retained for the alcohol of 90 per cent. strength, although its strength is somewhat greater than formerly. It is now 58·2 over proof in place of 56, and the specific gravity ·8338 in place of ·838.

For convenience a reference table is appended, giving the descriptions of the alcohol, approximate percentages by weight and volume, with specific gravity and strength in degrees proof.

TABLE NO. 5.

DESCRIPTION OF ALCOHOL, VIZ., PERCENTAGE BY VOLUME.	PERCENTAGE BY WEIGHT.	SPECIFIC GRAVITY.	DEGREES PROOF.
Alcohol—(New Rectified Spirit) 90 %	85·6	·834	58·2 over
" 70 %	62·5	·890	22·7 "
" 60 %	52·2	·913	5·2 "
" 45 %	38	·943	21 under
" 20 %	16·4	·976	65 "
Old Rectified Spirit 88·7 %	84·0	·838	56 over
Proof Spirit 57·0 %	49·2	·920	Proof.

The following table is appended to show the approximate quantity of water required to reduce a definite volume of a stronger spirit to a spirit of lower strength.

The original percentages by volume of Alcohol are placed at the heads of the columns, and percentages to which they are required to be reduced in the first column of the table. The quantity of water to be added to 1 litre is first shown, and then the quantity to 1 gallon.

TABLE NO. 6.

	90%	70%	60%	45%
70%	310 c. c. 49½ ozs.			
60%	536 c. c. 86 ozs.	175 c. c. 28 ozs.		
45%	1053 c. c. 168 ozs.	577 c. c. 92 ozs.	344 c. c. 54 ozs.	
20%	3558 c. c. 568 ozs.	2525 c. c. 404 ozs.	2014 c. c. 322 ozs.	1250 c. c. 200 ozs.

ALKALOIDS, And Active Principles.

It is noteworthy that six alkaloidal Salts are now official that were not contained in the 1885 Pharmacopœia or the Addendum of 1890, and all of these have been largely used during the past few years.

Aconitine.—The crystalline Aconitine only is now official, having a definite melting point, the formula of Dunstan and his co-workers having been adopted. It should not be forgotten that the crystalline salt is from 3 to 4 times stronger than the amorphous salt, official in the 1885 Pharmacopœia, quite apart from the recently announced antidotal effects of aconine to aconitine.

Apomorphine Hydrochloride.—The solubility in water is now accurately stated 1 in 50, as in the later reprints of the 1885 edition. Directions are given for the rejection of a salt that imparts a green colour to 100 parts of water, but it is doubtful whether the efficacy of the salt is affected by this change in colour produced on exposure to light and air.

Aloin.—The water of crystallization, namely, three molecules, is now accurately stated.

Atropine and Atropine Sulphate.—It will be noted that the characters and tests have been considerably altered, and that they are now practically those of the pure salts free from Hyoscyamine. The incorrectness of the characters of the United States Pharmacopœia has already been pointed out.

Chrysarobin.—This is now correctly described, and is the product of extraction of Araroba (or crude Goa powder) by hot Chloroform.

Codeine Phosphate.—This salt has been introduced for the preparation of a syrup of Codeine in place of the alkaloid which was used in the Syrup official in the Brit. Pharm. Conf. Formulary.

Morphine Tartrate.—This convenient and soluble salt has been introduced for the preparation of an injection and a liquor. It will be found to be stable, and the preparation of the injection by simple solution is much easier than the tedious process of precipitation and re-solution official in the 1885 Pharmacopœia.

Physostigmine Sulphate.—This salt is included in place of the alkaloid itself, which was official in the 1885 Pharmacopœia, and the dichroic test has been corrected. The disc is now prepared from this salt.

Strychnine Hydrochloride.—This salt is now official, as well as the alkaloid itself, and is used for the preparation of solution of Hydrochloride of Strychnine.

Veratrine.—The mixture of alkaloids official under this name in the 1885 Pharmacopœia is still retained, and the process for the preparation also given in order to obtain as uniform as possible a mixture of alkaloids. As the alkaloid is only used externally, its absolute uniformity of composition is not a matter of such great importance.

ANIMAL PRODUCTS.

Pepsin, the ferment of weak digestive power of the *Pharmaeopœia*, 1885, has been replaced by one having a very much greater digestive power, namely, 1/2500. The method of testing of the *Pharmacopœia* must be strictly followed, however, for the accurate determination of digestive power. It is not now as strong as that required by the United States *Pharmacopœia*, which is 1/3000.

Thyroid Dried.—The dried powdered Thyroid glands are now official, the fat being removed by washing with Petroleum Spirit.

The Liquor is also official, prepared with Glycerine, which will be subsequently referred to.

Liq. Pancreatis.—This solution will also be referred to under that class of preparations.

Musk.—Limit of ash is now fixed at 8 per cent.

COLLODIONS.

No alteration has been made in the Collodions, with the exception of blistering Collodion, where the proportion of Pyroxylin has been lessened, and it should be remembered the Liquor Epispasticus used as a solvent is doubled in strength.

CONFECTIONS.

Those of Opium, Rosa Canina, Scammony and Turpentine have been omitted.

Conf. Sulphur.—A slight alteration has been made in the formula for this preparation as regards the strength of Orange flavouring, and also the addition of Glycerine.

The others remain unaltered.

DECOCTIONS.

Of the thirteen Decoctions official in the *Pharmaeopœia*, 1885, only three have been retained in the form of simple Decoctions, and with the exception possibly of Decoction of Cinchona those omitted appear to be of little importance.

Compound Decoction of Sarsaparilla is no longer official in its dilute form, but finds a place under Liquors. The preparation there official is eight times the strength of the Compound Decoction of the 1885 *Pharmaeopœia*.

Dec. Aloes Co. still contains Saffron, and is prepared with Extract of Barbadoes Aloes.

Decoctum Granati.—This preparation is now double the strength of that of the *Pharmaeopœia*, 1885.

Decoctum Hæmatoxyli.—The proportion of Cinnamon Bark has been slightly increased, namely, from 55 grains to 70 grains to a pint.

DISCS.

One new Disc is official—that of Homatropine—each one containing 1-100th of a grain of Homatropine Hydrobromide.

Lamellæ Physostigmine.—The discs are now prepared from the Sulphate in place of the alkaloid itself.

ELIXIRS.

Notwithstanding the recommendations of many pharmacists and others that Elixirs should find a place in the British Pharmacopœia, none are official under that title, although under Syrup Aromat. and Syrup Cascara Aromat. preparations are included, the former of which closely corresponds with simple Elixir and the latter identical with Elixir of Cascara of the B.P.C. Formulary.

ESSENCES.

Essences of Anise and Peppermint official in the 1885 Pharmacopœia are now omitted, and are replaced by Spirits of a strength of one in 10, which will be subsequently alluded to.

ESSENTIAL OILS.

The omissions from the New Pharmacopœia consist of *Oleum Pini Sylvestris*, *Oleum Rutæ*, and *Oleum Sabinæ*. With reference to the first-named, I have shown that the oil does not exist in commerce, and it is therefore highly undesirable that oils should be sold under this name which are derived from other species, if, indeed, the oils are not simply mixtures of Turpentine with Acetic Ether. *Oleum Rutæ* and *Oleum Sabinæ* are essential oils that have been but little used in legitimate pharmacy, and their exclusion will meet with general approval.

The new Oils include *Oleum Pini (Pumilionis)*, which has been introduced in place of the so-called *Ol. Pini Sylvestris*, and which is readily obtainable, pure, in commerce.

Otto of Rose has also been included, and its inclusion will probably tend to a very considerable advancement in the purity of this oil as met with in this country.

The Descriptions.—It will be noted that in the descriptions the restrictions that the oil shall be distilled in Britain or in certain instances from plants grown in Britain, have been entirely removed. This is in accordance with the free trade notions of the British people as regards those oils which can be distilled equally well anywhere from dried material; but opinions will probably differ as to the good policy of making no requirement that the Oils of Peppermint and Lavender shall be obtained from plants grown in Great Britain.

With reference to the former the necessity is perhaps not so great. The demand for the highest class of American Peppermint Oil has led to very great improvement in its characters, and now it is easily obtained at a moderate price practically free from the oils of other plants with which it used formerly to be mixed, owing to carelessness in cultivation and collection.

With regard to Lavender Oil, the position is not nearly so clear. The differences between English and Foreign Oil of Lavender are almost as marked as between different species; it makes, however, but little difference where the oil is only used for a flavouring agent, as in the Compound Tincture of Lavender.

Turning to the descriptions, characters and tests of the various Essential Oils, it will be noted that for the most part they are very brief, and, I think

TABLE No. 7.—**ESSENTIAL OILS.**

	Sp. Gr. at 60° F.	Optical Rotation in a tube of 100 mm.	Solubility.	OTHER IMPORTANT CHARACTERS.
Anise ...	975—'990 (at 68° F.)	Slightly laevorotatory .	...	Should not liquefy below 59° F. after congelation.
Cajeput ...	'922—'930	... ..	... ..	Should become semi-solid with $\frac{1}{3}$ or $\frac{1}{2}$ vol. of acid phosphoric 1'75.
Caraway ...	'910—'920	...	...	No decided blue coloration with ferric chloride.
Chamomile ...	'905—'915	...	...	50 per cent. cinnamic aldehyde.
Cinnamon	1'025—1'035	...	...	Semi-solid with equal volume strong ammonia.
Cloves ...	Not below 1'050	...	...
Copaiba ..	'900—'910	... ..	... ..
Coriander ...	'870—'885	Laevorotatory... ..	1 in 1 absolute alcohol.	
Cubebs ...	'910—'930	... ..	1 in 3 alcohol (70 %.)	
Dill ..	'905—'920	Not less than +70°	...	
Eucalyptus	'910—'930	Not more than 10° in either direction	...	No reaction for phellandrene. Semi-solid with $\frac{1}{3}$ or $\frac{1}{2}$ vol. of acid phosph. 1'75.
Juniper ..	'865—'890	... ..	1 in 4 alcohol (95 %)	
Lavender ...	Not below '885	... ..	1 in 3 alcohol (70 %)	
Lemon ..	'857—'860	Not less than +59°	... ..	The rotation of the first 10 per cent. on fractionation should not differ more than 2° from that of the original oil.
Mustard ..	1'08—1'030	...	1 in 1 alcohol (95 %)	Should not leave a residue that crystallizes on cooling
Nutmeg ...	'870—'910	... ..	1 in 4 alcohol (70 %)	Menthol should readily crystallize at 17° F.
Peppermint	'900—'920	... ..	...	Becomes semi-solid with equal vol. strong ammonia.
Pimento ...	Not below 1'040	... ..	...	Not more than 10 per cent. should distil below 329° F. (165° C.)
Pine (Pinus Pumilio)	'865—'870	—5 to —10	... ..	Congeeing and melting points between 67° F. (19'4° C.) and 72° F. (22'2° C.)
Rose ...	'856—'860 (at 86° F.)	... ..	...
Rosemary...	'900—'915	Not more than +10	1 in 2 alcohol (90 %)	
Sandalwood	'975—'980	—16 to —20	1 in 6 alcohol (70 %)	
Spearmint...	'920—'940	... ..	1 in 1 alcohol (95 %)	
Turpentine	... ..	... ..	1 in 1 glacial acetic acid	Boils between 320° F. (160° C.) and 356° F. (180° C.)

commendably so, as there is no great advantage in cumbering a Pharmacopœia with great details similar to those in the U.S.P.

The specific gravities appear to be those within which the best qualities met with in commerce fall, whilst the tests of solubility and other characters are not by any means unattainable.

Anise Oil.—The specific gravity is taken at 68° C. (20° C.) because although it is possible to cool Star Anise Oil readily to 15° C., and at that temperature take its specific gravity, it is not easy to cool the Oil of Pimpinella Anisum to that point owing to its not having so low an abnormal solidifying point.

The requirement that the oil shall be slightly lævorotatory precludes the admixture of the oil with that of Fennel, which is dextrorotatory to the extent of 7 to 20.

Cajeput Oil.—The specific gravity and behaviour of the oil with Phosphoric Acid, sp. gr. 1.75 will indicate that none of the Cineol has been abstracted.

Caraway Oil.—The specific gravity of not below .910 will indicate the normal percentage of Carvol. The abstraction of Carvol from Caraway Oil and the poor yield of Carvol from certain varieties of Caraway Seeds, has been the subject of comment by me.

Cinnamon Oil.—The absence of a decided blue coloration with Ferric Chloride indicates the absence of Eugenol, which is present to the extent of 80 to 90 per cent. in Oil of Cinnamon leaf. It will be remembered that the Oil of Cinnamon Bark as imported is almost always mixed with that of Cinnamon Leaf. The requirement that it shall contain 50 per cent. Cinnamic Aldehyde is not by any means an exacting one, as oils can readily be obtained containing from 5 to 10 per cent. more Aldehyde than this.

Clove Oil.—The specific gravity required is not a high one, and is lower than that of the German and U.S.P. Pharmacopœias. It will be found, however, that many Clove oils having the most pleasant odour have a lower specific gravity than 1.060, which is the requirement of the German Pharmacopœia. It is true that the percentage of Eugenol may be slightly lower, but there is no comparison between the pleasant aroma of the oils.

Dill Oil.—The top limit of specific gravity, viz., .925, is, I think, a wise one, and will prevent the sale of the Oil distilled from the Indian variety of Dill, which has been shown to differ very considerably from that of the European Dill fruit, and to contain a substance closely allied to Apiol.

Eucalyptus Oil.—It would doubtless have been better to have introduced pure Eucalyptol into the British Pharmacopœia, but as the committee has decided otherwise, the characters and tests seem to be satisfactory for obtaining a fair constancy in the character of Eucalyptus Oil supplied in medicine, so far, at any rate, as the Eucalyptol and probable medicinal value goes. The inclusion, however, of "other species" will not do away with the difficulty of the difference of odour of such species as *Cneorifolia*. The requirement that the oil shall become semi solid with Phosphoric Acid, specific gravity 1.750, will indicate a high percentage of Eucalyptol (Cineol), and the absence

of all Phellandrene reaction will prevent the possibility of the sale of Oil of Eucalyptus Amygdalina, which is usually extremely low or wanting in Eucalyptol percentage. As Eucalyptol is optically inactive, the requirement that the rotation shall not be more than 10 in either direction appears satisfactory.

Lemon.—The most modern tests have been included in the British Pharmacopœia, the lowest optical rotation in a tube of 100 mm. allowed being + 59. That required by the U.S.P. is + 60, but Lemon Oils have been reported on, on more than one occasion, with lower optical rotation than 60, in which no impurity can be detected.

The comparison of the rotation of the first ten per cent. obtained by fractionation with that of the whole oil is a safeguard against the addition of Turpentine.

Nutmeg Oil.—The requirement that no residue crystallizing on cooling should be left when the oil is evaporated precludes the presence of fixed oil, which has been shown sometimes to exist in the oils of English distillation, and which is a drawback in the preparation of Sal Volatile.

Pine (Pinus Pumilio) Oil.—The optical rotation and the absence of more than 10 per cent. distilling below 165° C. will preclude the addition of Turpentine to the oil.

Rose.—The characters and tests—specific gravity .856—.860 at 86° F. (30° C.), and congealing point 67° to 72° F. (19.4° to 22.2° C.)—appear to be sufficiently wide to include all the finest Ottos met with in trade. Those having a higher melting point are open to a suspicion of added Stearoptene, and those having a lower melting point to a suspicion of added Geranium Oil. In an oil like this, however, where climate and soil make so great a difference in the relative proportion of its two important constituents, it is impossible to frame narrow limits for either specific gravity or congealing points.

Rosemary Oil.—The solubility in alcohol will exclude oil of Turpentine.

Sandal Wood Oil.—Objection may possibly be taken to the range of specific gravity, and recent publications have tended to show that the specific gravity may fall below .975. In my experience, however, based upon an examination of a very great many samples of Santal Oil distilled by the principal distillers throughout Great Britain, France, Germany, this is approximately the range into which these oils fall, which have an alcohol (Santalol) percentage of more than 90.

Camphor.—Specific gravity is now accurately stated, namely, .995 instead of the observation that it floats on water.

Creosote.—For convenience I have included this substance under Essential Oils, the alterations being of a very important character.

The Creosote now official is that derived from Beechwood, that is to say, containing principally Guaiacol and having a high specific gravity, not below 1.079. The monograph of the former Pharmacopœia was no doubt based upon the Stockholm Tar Creosote principally used at the time of its publication, and prepared by a well-known London firm. The Beechwood Creosote now

official will contain a large proportion of Guaiacol as shown by the specific gravity 1·079 and range of distillation, 392° F. (200° C.) to 428° F. (220° C.)

The characters are very similar to those included in the Addendum of the French Codex.

Terebene.—This substance is official for the first time, and the characters and tests preclude the possibility of simple mixtures of the two optically differing Turpentine which have been offered as Terebene.

ETHERS, ESTERS AND VOLATILE SOLVENTS.

Æther.—The impure Ether containing 92 per cent. by volume of Ethyl Oxide has been retained, having a specific gravity of 735. In no other of the leading Pharmacopœias, however, is so impure an Ether as 92 per cent. official, and the advantage of its inclusion is not evident. Observations on the heaviness and inflammability of the vapour are now added, which precautions are certainly not out of place.

Æther Acetic.—The preparation has been altered in several respects. The range of specific gravity is now from 900 to 905, instead of "about 900," and it is directed that it shall boil between 165° and 172° F.—(73·9 to 77·8 C.). The specific gravity of the German Pharmacopœia is 900 to 904, whilst that of the U.S.P. is 893 to 895, whilst the sp. gr. of pure body is 907, and its boiling point 77·5° C. It is clear, therefore, that the requirements of the British and German Pharmacopœias are more stringent than those of the U.S.P. Directions are also given that one part by weight should dissolve in not less than 10 parts of cold water, which precludes the presence of any considerable quantity of alcohol. This test differs but little from the similar ones present in the other Pharmacopœias. The actual proportion of true Ethyl Acetate may be determined by the ordinary Ester determination process.

It will be found to be about 90 per cent. in an Acetic Ether answering the new characters.

Æther Purificatus.—By the title of Purified Ether the so-called pure Ether of the old Pharmacopœia has been designated. The description is altered, and it is now Ether from which "most of the Ethylic Alcohol" has been removed, and not "free from Alcohol," as in the old Pharmacopœia. The specific gravity is now stated to be not exceeding 722 and not below 720. The sp. gr. of absolutely pure Ether is 724. The limits in either direction will prevent the presence of alcohol or ethylene respectively. A test has been added for the absence of Hydrogen Peroxide.

Amyl Nitrite.—In accordance with the experiments of Dunstan and others this liquid is now to be produced by the interaction of Nitrous Acid and Amylic Alcohol only, and not Nitric Acid as well, as in the Pharmacopœia, 1885. The requirement has been added that it shall not have more than the faintest acid reaction. This test is more precise in the United States and German Pharmacopœias, where a definite limit of acidity is stated. The percentage of Nitrite is now to be determined by the same method as the Nitrite of Ethyl in Spirit of Nitrous Ether.

Benzole.—This preparation is included for the first time in the body of the Pharmacopœia, and it will be found that the better grades of Benzole

of commerce answer the Pharmacopœial requirements. The preparation has been introduced as a solvent of Caoutchouc for Charta Sinapis, as well as for extracting the fixed oil from the Mustard Seeds used in this preparation.

It should be noted, however, that in the corresponding preparation of the United States Pharmacopœia, Petroleum Ether (Benzine, sp. gr. '670 to '675) is official.

Chloroform.—The limit of specific gravity is now from 1'490 to 1'495 in place of the sp. gr. 1'497 of the 1885 Pharmacopœia. This latter was stated to be equal to the presence of 1 per cent. of Ethylic Alcohol, but the gravity was not accurately stated as it should have been, if containing that quantity of alcohol.

Very stringent tests have been added for the absence of Chlorine, the usual Zinc Iodide Test being modified by the substitution of Cadmium Iodide.

It is stated that Chloroform may be prepared by heating the mixture of Chlorinated Lime, slaked lime, Ethylic Alcohol and distilled water, but as it is not definitely required to be prepared from these substances, it would appear that Acetone Chloroform answering the characters and tests, would still correspond to the requirements of the New British Pharmacopœia.

FIXED OILS, FATS, WAXES, &c.

Adeps.—The title has been amended and Lard is now known by the simple title instead of prepared Lard as formerly. The process of preparation is still retained, and in addition to the tests contained in the British Pharmacopœia, 1885, Conroy's Modification of Bechi's test has been added for the detection of Cotton Seed oil as well as a requirement as to the limit of acidity.

Benzoated Lard.—The Benzoin has been increased by half as much again, the proportion now being 210 grains to a pound in place of 140.

Adeps Lanæ.—Official in the Addendum, 1890, has been retained, and the tests slightly modified. The melting point is now stated to be from 104° F. to 112° (40 to 44'40 C.). The melting point in the first editions of the Addendum, 1890, was given as 104° to 111° F., whilst in the later editions it was stated as being from 100° to 112° F. A definite requirement for ash has now been added, namely, 0'3 per cent. in place of "a trace" allowed in the previous Pharmacopœia. The same limit of acidity has been given, although it might quite well have been very considerably reduced.

Adeps Lanæ Hydrosus.—The preparation has been retained unaltered, with the exception that the directions for drying, to determine the proportion of water have been slightly modified.

Cera Flav. (and Cera Alba.).—The tests have been very considerably amplified, and there can be no question that as now stated they are probably as comprehensive tests as can possibly be framed for the detection of adulterations in Beeswax.

The specific gravity is now stated to be '960 to '970 in place of '950 to '970. The melting point 144'5 to 147 (62'5 to 63'90 C.), in place of a melting point 146° F. (63'30 C.), which was official in the previous Pharmacopœia. The saponification tests have now been added. These from many points of view may be considered the only true and accurate tests for the determination

of the purity or otherwise of a sample of Beeswax. A modification of the "charring" test of the United States Pharmacopœia has been introduced for the detection of Paraffin.

Cetaceum.—The melting point from 111° to 122° F. (43·9° to 50° C.) has been altered to 114·8° to 122° F. (46° to 50° C.).

Considerable differences in the melting point of Cetaceum are observable according to the method by which it is taken. It will be noted that the melting point of the United States Pharmacopœia is "nearly 50° C." (122° F.), whilst that of the German Pharmacopœia is from 45° to 50° C.

The majority of samples of refined Spermaceti at present met with melt at about 115° to 117° F. Tests are now added for the absence of Stearic Acid, and also for the limit of acidity.

Ol. Amygdalæ.—The principal characters of the 1885 Pharmacopœia have been considerably extended, and the tests now included appear to be highly satisfactory ones. The specific gravity, '915 to '920, and congealing point are those of the United States Pharmacopœia. The test also for the absence of Peach Kernel and other oils is practically the same as that contained in that work.

Ol. Crotonis.—The requirement that the oil shall be expressed in Britain is now omitted, and the characters have been amplified. The specific gravity is now stated, namely, '940 to '960, and a test added for the absence of non-drying oils identical with that contained in the German Pharmacopœia, 1890.

Ol. Lini.—More definite characters have been added for the examination of this oil, including the specific gravity, solubility in alcohol 90 per cent., and also congealing point. All of these are official in the United States Pharmacopœia. The requirement that the oil shall be expressed in Britain has been omitted.

Ol. Morrhuæ.—The description of the oil now includes the removal of the Stearine by filtration at a temperature of about 23° F. (—5° C.). The characters include the specific gravity and solubility tests in various bodies. The Nitric Acid test is an exceedingly good one, and may be taken to form a very accurate criterion of the value of Cod Liver Oils.

Ol. Olivæ.—The specific gravity has been added, and Bechi's test for the absence of Cotton Seed Oil has also been included. It is very sensitive test, and finds a place in the United States Pharmacopœia. It will be noted that the limits of specific gravity, '914 to '919, are slightly greater than those of either the German or United States Pharmacopœia, which are '915 to '918.

Ol. Ricini.—The specific gravity has been added, namely, '950 to '970, which is the range of specific gravity of the United States and German Pharmacopœias. The oil is now stated to be soluble in five times its volume of alcohol 90 per cent. It was stated to be soluble in four volumes of rectified spirit in the later editions of the 1885 Pharmacopœia. Tests for the detection of cotton seed and other fixed oils contained in the United States Pharmacopœia are made official.

Ol. Theobromatis.—The melting point 88° F. to 93° F. (31·1° to

33·9° C.) has been altered from 86° to 95° F. (30° to 35° C.). The United States Pharmacopœia test for other fats is also included.

Paraffinum Durum.—The objections to the wide range of melting point allowed in the 1885 Pharmacopœia have been met by a narrowing of the limit of melting point to 130° to 135° F. (54·4° to 57·2° C.). This is a higher melting point than is official in either the United States or German Pharmacopœias, but it should be remembered that the melting point of soft Paraffin is lower in the Brit. Pharm. than in the United States Pharmacopœia.

Paraffinum Liquidum.—This is included for the first time, no doubt on account of the increasing use of the preparation in the form of an Emulsion. The range of specific gravity ('885—'890) is a good one, and the test for the absence of sulphur compounds highly necessary.

Paraffinum Molle.—The range of melting point has been somewhat narrowed, and is now from 96° to 102° F. (35·5° C. to 38·9° C.), in place of 95° to 105° F. (35° to 40·5° C.). A test is added for the presence of fixed oils, fats, &c.

As already referred to, the melting point of a soft Paraffin of the U.S.P. is higher, namely, 104° to 113° F. It will be found that the most largely advertised soft Paraffin frequently does not fall between this limit of melting point.

The description of white or yellow is still retained, and in the directions for the preparation of ointments instructions, which will be alluded to, are given for the employment of the white or yellow variety, according to the colour of the ointments for which it is to be used.

GLYCERINES.

The number of these preparations contained in the New Pharmacopœia has been increased by one as compared with the 1885 Pharmacopœia, Glycerine Acid Gallic having been omitted, and Glycerine Acid Boric and Glycerine of Pepsin added.

Glycerine.—It will be noted that the specific gravity has been altered from 1·25 to 1·260, the latter gravity being that of redistilled Glycerine of commerce of some years past. This specific gravity is greater than that of either the United States or German Pharmacopœias.

A convenient test for the detection of Butyric Acid by the formation of Butyric Ether has been added, but the characteristic odour of this substance is produced faintly by almost all samples of Glycerine. Siebold's test for the limit of Arsenium has been added.

Glycerinum Acid Boric.—This new preparation corresponds practically with the Glyceritum Boro-Glycerini of the United States Pharmacopœia.

Glycerinum Acid Carbolic.—The strength is practically the same as it was before.

Glycerinum Acid Tannic.—This is now one part of Tannic Acid in 5 fluid parts, whilst formerly it was one part in about 4½ fluid parts. It will be noted that the directions are altered, and that it is to be made in the cold. By adopting this method the preparation will have a lighter colour.

Glycerinum Aluminis.—The strength has been altered, and the pre-

paration made slightly less viscous. It is now one part in 6 fluid parts, whilst formerly it was about one part in $5\frac{1}{2}$ fluid parts.

Glycerinum Amyli.—The relative proportions of Glycerine and water have been altered, but the strength of the preparation is practically the same, namely, one in about $7\frac{1}{2}$ parts by measure.

Glycerinum Boracis.—The distilled water has been omitted, the preparation being of the same strength in Borax as before, and to be prepared in the cold.

Glycerinum Pepsinæ.—The strength of this preparation is practically that of the strong Glyceroles of commerce, either prepared in this country or imported from America, namely, 5 grains of Pepsin in one fluid drachm.

Glycerinum Plumbi subacet.—The preparation is the same, but more precise directions have been given for the concentration to a convenient weight, and the specific gravity 1.48 added.

Glycerinum Tragacanth.—The proportions have been slightly altered, and in the description the word “translucent” omitted.

GRANULAR EFFERVESCENT PREPARATIONS.

Two preparations are official that were not contained in the Addendum of 1890, namely Effervescent Citrate of Lithium and Effervescent Citrate of Caffeine, making in all six effervescent preparations included in the New Pharmacopœia.

Of these it should be noted that the Effervescent Citrate of Lithium contains no sugar.

The strengths of the preparations are as under:—

Caffeinæ Citras	...	...	...	4	in	100
Lithii	„	...	...	5	in	100
Mag. Sulph. Effervesc.	...	...	...	50	in	100
Sodii Phosphas	...	...	...	50	in	100
Sodii Sulphas	...	...	...	50	in	100
Sodii Citrotart	...	...	...	—

HONEYS.

It will be noted that the Monograph for Honey itself is omitted, following the rule for the omission of dietetic articles. The characters and tests, however, are included under Clarified Honey. It is a pity, however, that an optical rotation test has not been added. It would be serviceable in the detection of glucose, &c. The percentage of ash is limited to 0.2.

Mel Boracis is retained unaltered.

INFUSIONS.

Considerable alterations have been made in the Infusions.

One new Infusion only has been introduced, namely, Inf. Scoparii, but the strength, however, of several of the Infusions has been altered, and in many instances also the time required for Infusion.

Seven of the Infusions official in the 1885 Pharmacopœia are now omitted. Of these the only one used to any extent was that of Chamomile.

For the sake of convenience the alterations in the strengths and times of Infusions have been summarized in a table. (No. 8.)

	1885.		1898.	
	STRENGTH TO A PINT.	TIME OF INFUSION.	STRENGTH TO A PINT.	TIME OF INFUSION.
Aurant ...	1 oz.	15 min.	1 oz.	15 min.
" Co. ...	$\frac{1}{2}$ "	15 "	$\frac{1}{2}$ "	15 "
Buchu ...	1 "	30 "	1 "	15 "
Calumba ...	1 "	30 "	1 "	30 "
Caryoph. ...	$\frac{1}{2}$ "	30 "	$\frac{1}{2}$ "	15 "
Cascarilla ...	2 "	30 "	1 "	15 "
Chiretta ...	$\frac{1}{2}$ "	30 "	1 "	15 "
Cinchonæ Acid ...	1 "	60 "	1 "	60 "
Cusparia ...	1 "	60 "	1 "	15 "
Digitalis ...	56 grains	15 "	60 grains	15 "
Ergot ...	$\frac{1}{2}$ oz.	30 "	1 oz.	15 "
Gentian Co. ...	$\frac{1}{4}$ "	30 "	$\frac{1}{4}$ "	15 "
Krameria ...	1 "	30 "	1 "	15 "
Lupuli... ..	1 "	60 "	1 "	15 "
Quassia ...	110 grains	30 "	88 grains	15 "
	(Cold water.)		(Boiling water.)	
Rhei ...	$\frac{1}{2}$ oz.	30 "	1 oz.	15 "
Rosæ Acid ...	$\frac{1}{2}$ "	30 "	$\frac{1}{2}$ "	15 "
Scoparii ...	Decoc tion.		Infu sion.	
	1 oz.	10 "	2 "	15 "
Senega ...	1 "	30 "	1 "	30 "
Sennæ... ..	2 "	30 "	2 "	15 "
Serpentaria ...	$\frac{1}{2}$ "	30 "	1 "	15 "
Uvæ Ursi . . .	1 "	60 "	1 "	15 "

INJECTIONS.

The Injections have been increased in number by the re-naming of Injection of Cocaine. It was included in the Addendum of 1890 as Liq. Cocaine Hydrochlor.

Injectio Apomorphinæ.—The strength of this preparation has been practically halved, and it is now a one per cent. solution prepared in boiled distilled water with the addition of dilute Hydrochloric Acid.

It will be found to be reliable in its present strength, and there is no danger of crystallization, as there was with the double strength Injection of the 1885 Pharmacopœia. It is ordered to be freshly prepared, but it is doubtful whether there is any necessity for such instruction.

Injectio Ergotæ Hypoderm.—This Injection is ordered to be prepared with distilled water and Phenol in place of the Camphor water of the old Pharmacopœia. The strength is 10 grammes in 30 c.c., whilst that of the 1885 Pharmacopœia was about 10 grammes in 27 c.c.

Injectio Morphinæ Hypoderm.—The preparation has been altered and is now made by the solution of the Tartrate in distilled water, the strength being one grain in 22 minims, or about half that of the 1885 Pharmacopœia.

LINIMENTS.

No Liniments have been either expunged or added, although alterations have been made in the titles of three.

Lin. Camph. Co. is now designated **Lin. Camphoræ Ammoniatum** and **Lin. Sinapis Co.** now called **Lin. Sinapis**—**Lin. Iodi** now appears as **Liq. Iodi Fortis**. The alteration in name is a good one, as the preparation was not intended for use as a Liniment.

Lin. Ammonia.—The formula has been slightly modified and one-third of the Olive Oil replaced by Almond Oil.

Lin. Belladonnæ.—This preparation is now made from the standardized Liquid Extract, and is of practically the same strength as that of the U.S.P. The strength is practically 1 in 1, and not 1 in $1\frac{1}{2}$ as in the 1885 Pharmacopœia. It will be remembered that that of the Pharmacopœia, 1867 was 1 in 1, but that Liniment was not, doubtless, as strong as that now official, as the root was not completely exhausted by the process.

Lin. Hydrargyri.—This preparation is now made with a corresponding proportion of strong Solution of Ammonia in place of a dilute solution and the difference made up with Liniment of Camphor.

Lin. Saponis.—This is now made with soft soap in place of hard soap. This preparation has been largely sold by wholesale druggists, as it is not so liable to deposit on alteration in temperature as when made from hard soap.

Lin. Sinapis.—The Extract of Mezereon is omitted and the preparation is half as strong again in Oil of Mustard. The omission of the extract should be noted, as the appearance of the preparation is completely altered.

Lin. Terebinthinæ.—The proportions have been considerably altered from those of the very much vexed and discussed formula of the Brit. Pharm., 1885. The Liniment following the new directions produces a thick but still pourable emulsion.

LIQUID EXTRACTS.

The additions include standardized Liquid Extracts of Belladonna, Ipecacuanha and Nux Vomica, as well as an unstandardized one of Jaborandi, whilst the omissions include Liquid Extract of Bael and Rhamnus Frangula.

The omission of Liquid Extract of Bael was anticipated, whilst that of Rhamnus Frangula, although the extract is of undoubted medicinal value, does not differ so much from Rhamnus Purshianus as to make its inclusion as well advisable.

Belladonna.—The strength is 0.75 per cent. of total alkaloids, and the process for the standardization is practically that of Cripps. The liquid extract is used for the preparation of a solid extract, liniment, plaster, tincture, and ointment.

Cascara.—The process has been considerably modified, and consists in the extraction of the bark in a No. 20 powder with water, and concentration, and the final product contains one-fifth of its volume of 90 per cent. alcohol, whereas formerly it contained a quarter of its volume of the slightly weaker old rectified Spirit.

Ext. Glycyrrhizæ Liq.—The complaints of the fermentation of this Liquid Extract have been so frequent, that the change that now is made official is in every respect a valuable one. It will be noted that the extract is to be concentrated to a specific gravity of 1·2 and a quarter of its volume of 90 per cent. alcohol added. This will yield a liquid extract of practically the same final specific gravity as the old Pharmacopœia, but differing in appearance owing to it being prepared from decorticated Liquorice.

Extract Ipecac. Liq.—This has been briefly alluded to under standardization. The process adopted is that devised by Braithwaite and myself.

It has to be prepared, as has already been explained, from Rio Ipecacuanha only, and a liquid extract 1 in 1, properly prepared from normal Rio Ipecac., will contain practically the right percentage of total alkaloids. It must not be forgotten that the Carthagena variety, if employed, yields practically the same percentage of total alkaloids, but the heavier proportion of Cephaeline is apt to cause very considerable nausea in the wine prepared from the liquid extract.

Extract Nucis Vom. Liq.—This Liquid Extract is of practically the same alcoholic strength as that in the U.S.P., but contains no Acetic Acid.

Its strychnine strength, viz., 1·5 per cent., is the same as the total alkaloidal strength of the U.S.P. preparation. The assay is based on the separation of the alkaloids by the ferrocyanide process, and will be found satisfactory.

Extract Opii Liq.—This preparation has been reduced in strength from 1 oz. of extract in 1 pint to $\frac{3}{4}$ oz. Its strength is now the same as Tincture of Opium, and there does not appear great reason for its inclusion. It is true it is weaker in alcohol than the Tincture, and therefore for the purpose of lotions where spirit might be irritating, it is slightly preferable.

Extract Sarsæ Liq.—This will be found to be one of the most satisfactory changes in the new Pharmacopœia. The extract is produced by repercolation, with a 20 per cent. alcohol, and the addition of one fluid part in 10 fluid parts of Glycerine, is most palatable, has the pleasant aroma of Sarsaparilla, and should be free from the objectionable deposit that was always present in the Liquid Extract of the Pharmacopœia of 1885.

LIQUORS.

To those official in the 1885 Pharmacopœia 18 new preparations have been added, of which ten are concentrated galenical preparations, intended to represent more or less closely the concentrated infusions hitherto sold by wholesale druggists.

Sixteen Liquors included in the previous Pharmacopœia have been omitted, whilst Linimentum Iodi has now been termed Liq. Iodi Fortis.

It will be convenient to consider these preparations under the heading of Chemical and galenical Licores.

CHEMICAL LIQUORS.—All of those which were intended in a former Pharmacopœia to represent 1 per cent. solutions have now been correctly adjusted so as to be of that exact strength.

Liquor Ammoniz Fortis, now so-called instead of Liq. Ammon. Fortior. This is precisely the same as formerly, with the exception that a test

has been added for the detection of tarry matters. It is similar to that in the United States Pharmacopœia, with the exception that Hydrochloric Acid is substituted for Sulphuric Acid. The test is an important one, as a considerable quantity of the cheaper kinds of Ammonize, sold more especially for refrigerating purposes, do not answer this requirement.

Liquor Ammon. Acet.—The concentrated preparation of the former Pharmacopœia is omitted, and a dilute preparation only official. The reason of this inclusion is apparently that it may be freshly made, and contain as much carbonic acid in solution as possible, which unquestionably improves the palatability of the preparation. It is unfortunate, however, that the starting point of the preparation is not Acetic Acid instead of Carbonate of Ammonia, for whilst Acetic Acid is of constant composition, Carbonate of Ammonia may vary considerably, and consequently the resulting preparation vary in strength of true Acetate of Ammonia.

Liquor Ammon. Citratis.—The stronger preparation has here been omitted and the dilute Liquor only included. It will be noted, however, that the starting point in this case is Citric Acid, and not Ammon. Carbonate.

Liquor Arsenicalis and Liquor Arsen. Hydrochlor.—Both of these preparations have been so adjusted that they shall be true one per cent. solutions.

Liquor Arsenii et Hydrarg. Iodid.—The quantities of Arsenious and Mercuric Iodides have now been made exact for a one per cent. solution, namely, $87\frac{1}{2}$ grains, and therefore the reading of the directions should be until "all is dissolved" and not "nearly all." The directions of the 1885 Pharmacopœia, namely, until nearly all is dissolved, were based upon a slight excess of the Iodides, 45 grains to 10 fluid ounces.

Liquor Atropinæ Sulph.—Distilled water and Salicylic Acid have been substituted for Camphor water. It remains to be seen whether the change is an advantageous one. Squire states that Solution of Salicylate of Atropine does not keep well.

Liquor Bismuthi.—Now prepared by redissolving freshly precipitated Citrate of Bismuth, that salt no longer being official in the Pharmacopœia. The process now made official is practically that which has been followed by manufacturers on a large scale for years.

Liquor Calcis Saccharatus.—The specific gravity has been altered from 1.052 to 1.055.

Liquor Ethyl Nitrite.—The Solution of Nitrite of Ethyl of 3 per cent. strength in absolute alcohol containing five parts by volume of Glycerine, suggested by Dunstan and his co-workers, has been adopted in the Pharmacopœia. It should be noted that the test for the absence of aldehyde readily distinguishes this preparation from the distilled Spirit of Nitre, which always contains traces of aldehyde.

In this preparation the percentage of true Nitrite of Ethyl is permitted to decrease from 3 down to $2\frac{1}{2}$ per cent., whilst in the case of the Spirit of Nitre it is to decrease from $2\frac{1}{2}$ to 2 per cent. It is a pity from some points of view that the Solutions were not made of the same Ethyl Nitrite strength.

Liquor Ferri Acet.—The stronger Liquor of the 1885 Pharmacopœia has been omitted, and the formula now included, which produces the official dilute liquor of the former Pharmacopœia, consists of half the quantities made up to double the bulk.

Liquor Ferri Perchlor Fortis.—Now so-called, and not Fortior.

Liquor Hydrarg. Perchlor.—In this Solution Chloride of Ammonium has now been omitted in accordance with the opinions expressed by Martindale and others.

Liquor Hydrogenii Peroxidi.—This preparation is now official for the first time, and the valuation of it is based upon the volume of Oxygen yielded when treated with a strongly acid 5 per cent. Solution of Potassium Permanganate, the volume of gas yielded being twice that of Oxygen yielded by the Solution of Hydrogen Peroxide itself.

Liquor Iodi Fortis.—Now included under Liquores in place of under Liniments. The proportion of Iodide of Potassium has been slightly increased and the Glycerine omitted.

Liquor Morphinæ Acet.

Liquor Morphinæ Hydrochlor.

Liquor Morphinæ Tart.

These Solutions are now one per cent. Solutions, the Solution of the Tartrate having been adopted in place of the Sulphate which was included for the first time in the Addendum of 1890.

Liquor Morphinæ Bimeconatis has been omitted as the combination of Morphine with the inert Meconic Acid was of doubtful value.

Liquor Plumbi Subacet. Fort. and

Liquor Plumbi Subacet. Dil.—The preparations are retained unaltered, the synonyms of Goulard's extract and Goulard's lotion or Goulard's water being added.

Liquor Potassæ.—It would have been better had the instructions for the preservation of this preparation included an observation on the necessity of greasing the stopper or adopting some other method, in order that it might be readily removed, which is probably the intention of the instructions in the United States Pharmacopœia. The difficulty of removing stoppers from bottles containing Liquor Potassæ or Liquor Sodæ is too well known to need observation.

Liquor Potass Permang.—Now made of exact 1 per cent. strength.

Liquor Sodii Arsenatis.—The Solution has now been made of exact 1 per cent. strength of anhydrous Sodium Arsenate.

Liquor Strychninæ Hydrochlor.—The preparation is now made with Hydrochloride instead of the alkaloid itself and Hydrochloric Acid. The difficulty of crystallisation in a cold place will be probably overcome by the alteration in the formula, and the instructions that the Solution should not be kept in a cold place, which were included in the later reprints of the 1885 edition, are now omitted.

Liquor Zinci Chloridi.—The specific gravity has been corrected, and now stands at 1.530. The specific gravity was incorrectly stated as 1.460 in the 1885 edition.

GALENICAL LIQUORS.

The observations in the preface have been already alluded to, and it is to be regretted that a few of the concentrated Infusions in more general use have not been included, such as Orange and Compound Orange, Cascarilla and Compound Gentian. Those of Cusparia, Krameria and Serpentry are but little employed either in the dilute or concentrated condition.

These Liqueurs are intended to represent as nearly as possible concentrated infusions of the strength of 1—9, and not 1—7 as sold up to the present time. The menstruum selected in most of the cases has been a dilute alcoholic one, namely, 20 per cent. alcohol by volume.

The inclusion of these preparations will tend to uniformity in this class of preparation, and no doubt the majority of the unofficial concentrated Liqueurs for the preparation of the official and other Infusions and decoctions will now be sold of this 1 to 9 strength instead of 1 to 7 as formerly.

Liquors of Chiretta, Cusparia, Krameria, Quassia, Rhubarb and Serpentry are directed to be made by simple percolation with 20 per cent. alcohol, whilst that of Senega is made with a slightly stronger solvent, consisting of a mixture of equal parts of 20 and 45 per cent. alcohol.

Liquor Calumbæ Conc. is prepared by double maceration of the Columba, clarification and the addition of alcohol in the proportion to produce a preparation of the same alcoholic strength as the other Liqueurs.

Liquor Sarsæ Co. Conc. is directed to be prepared by Infusion of the ingredients in successive portions of water at 160° F., the temperature being selected so as not to remove the starchy matter. The preparation as now included is practically that hitherto sold as concentrated Compound Decoction of Sarsaparilla 1 to 7.

Liquor Sennæ Conc. is prepared by re-percolation, clarification by heating to 180° F., and subsequent addition of alcohol and Tincture of Ginger, the final alcoholic strength being practically the same as the other Liqueurs.

Liquor Caoutchouc.—The preparation official is similar to that included in the Monograph for Charta Sinapis in the United States Pharmacopœia, and is official in the British Pharmacopœia for that purpose. It should be noted, however, that Benzole is substituted for Benzine (Petroleum Ether) of the U.S.P. The Solution is not meant in any way to represent the Liquor Gutta Percha of the 1885 Pharmacopœia prepared with Chloroform.

Liquor Epispasticus.—The strength has been increased, being 10 ozs. to a pint in place of 5 ozs.

Liquor Hamamelidis.—The preparation has been made official to correspond to the much-advertised distillates of Fresh Hamamelis leaves. The product has a specific gravity of about .975—approximately that of the distillates imported from the United States.

Liquor Pancreatis.—The preparation is directed to be prepared by digestion of the fresh Pancreas divided by trituration with pumice or sand in

20 per cent. alcohol. The method of testing is that adopted in the U.S.P. for Pancreatin, with the exception that the temperature of the peptonisation of the milk in the Brit. Pharm. is 113° F. (45° C.), and not 38° C., as in the United States Pharmacopœia. It will be found that a Liquor Pancreatis corresponding to this preparation can be made by the digestion of 1 oz. of Pancreatin answering the tests of the U.S. Pharm. in one pint of 20 per cent. alcohol.

Liquor Picis Carb.—The formula of the B.P.C. Committee has been adopted. It does not at all accurately represent the original Liquor Carbonis Detergens.

Liquor Thyroidei.—The method of preparation is very similar to that described by White. No doubt objections may be raised to the preparation of the solution by the method suggested, unless special sterilising precautions are taken.

LOZENGES.

Several alterations have been made in the lozenges. The additions include Carbolic Acid, Eucalyptus Gum and Guaiacum Resin, Rhatany and Rhatany and Cocaine, none of the lozenges official in the previous Pharmacopœia having been omitted.

Different bases are now made official for the lozenges, and find a place in the Appendix at the end of the Pharmacopœia.

Bases are as under :—

Fruit Basis.
Rose Basis.
Simple Basis
Tolu Basis.

Few alterations have been made in the bases of those official in the 1885 Pharmacopœia. These are tabulated for convenience.

				1885.	1898.
Troch.	Acid Benzoic	...	...	Simple basis	Fruit basis
"	Acid Tannic	...	...	Tolu basis	Fruit basis
"	Ipecacuanhæ	...	...	Simple basis	Fruit basis
"	Pot. Chlor.	...	...	Simple basis	Rose basis
"	Sodæ Bicarb.	...	...	Simple basis	Rose basis

Tabellæ Nitroglycerini now weigh 5 grains each, instead of 2½ grains.

MIXTURES.

Two have been omitted from the Pharmacopœia, 1885.

Mist. Ferri Aromat., which has been shown to be perfectly useless so far as the proportion of iron is concerned, and Mistura Scammonii, which was, so far as I know, never prescribed.

Mist. Ammoniaci.—The preparation has been slightly altered by replacing ½ oz. of water with ½ oz. syrup of Tolu.

Mist. Creosoti.—The Glacial Acetic Acid has been omitted.

Mist. Cretæ.—15 grains Tragacanth have been substituted for $\frac{1}{4}$ oz. powdered Acacia, and the mixture is now to be made up to a definite bulk.

Mist. Ferri Co.—The formula remains the same, with the exception that the Spirit of Nutmeg has been reduced.

Mist. Guaiaci.—Acacia has been substituted for Tragacanth.

Mist. Olei Ricini.—The Emulsion made official in the 1890 Addendum, which was prepared by alkali and most nauseous, has been replaced by the highly satisfactory one prepared with Gum Acacia of the same strength, namely, three in eight.

Mist. Sennæ Co.—The proportion of Sulphate of Magnesium has been increased and is now 5 ozs. in one pint in place of 4 ozs. The Tincture of Senna has been omitted, and Spirit Ammon. Aromat has been in part substituted.

MUCILAGES.

Of the Mucilages one, Mucilage of Starch, has been omitted.

Mucilage of Acacia is of the same strength as in the former Pharmacopœia. The directions now include the rinsing of the gum with distilled water before solution and the rejection of the washings.

Mucilage of Tragacanth.—The formula is retained unaltered, but the directions slightly modified.

OINTMENTS.

Six ointments are included for the first time in the New Pharmacopœia, but of these one, Ung. Paraffini, is simply a mixture of hard and soft Paraffin as a basis for various Ointments.

Seven Ointments have been omitted, and of these the only one used in any quantity was the Simple Ointment, which has now been replaced as a basis in those ointments for which it was formerly official.

For convenience it appears better to refer to the Ointments according to their bases.

Ointments with Paraffin bases.—Of these Ointments those that are white are directed to be made with mixtures of hard and soft White paraffin, or the soft variety alone. Seven ointments are made with the White Ung. Paraffini, whilst three are prepared with the Yellow Ung. Paraffini. Paraffins, either soft or hard and soft in different proportions, are used in the preparation of six ointments.

A foot note is appended to the formula for Ung. Paraffini, stating that the proportions of hard and soft Paraffin may be modified to meet the exigencies of climate and temperature, and also a statement that for the bases of coloured ointments the yellow variety of soft Paraffin may be used.

These instructions as to colour will now do away with the difficulty that has hitherto been experienced by dispensers by making the Ointments, that can

TABLE NO. 9.—OINTMENTS.

Name of Ointment	Basis, 1885	Basis, 1898	Strength, 1885	Strength 1898
Ung. Acid Boric	Hard and Soft Paraffin	Paraffin Ointment	1 in 7	1 in 10
" Acid Carbolic	" "	Glycerine and Paraffin Oint.	1 in 19	1 in 25
" Salicylic	" "	Paraffin Ointment	1 in 28	1 in 50
" Aconitinæ	Benz. Lard	Lard	About 1 in 60	1 in 50
" Aquæ Rose	" "	"	Amorph. Aconitine	Crystalline Aconitine
" Atropinæ...	" "	"	About 1 in 60	1 in 50
" Belladonnæ	" "	Benz. Lard	1 in 10 Ext. of Root	Standardized
" Cantharidis	Yellow Wax and Olive Oil	Olive Oil and Spermaceti	About 1 in 7	About 1 in 10
" Capsici	Not Official	"	—	About 1 to 4
" Cetacei	Benz. Lard	Benz. Lard	1 in 25	1 in 25
" Chrysarobin	Not Official	Lard	"	1 in 25
" Cocainæ	Hydrous Wool Fat (1890)	Hydrous Wool Fat	2 Juice in 1 (1890)	2 Juice in 1
" Conii	Simple Ointment	Hard and Soft Paraffin	About 1 in 9	1 in 10
" Creosoti	Hard and Soft Paraffin	" "	1 in 5	1 in 10
" Eucalypti	"	Benz. Lard	1 in 6½	1 in 5
" Gallæ	Benz. Lard	"	Opium 1 in 14½	7½ %
" cum Opio...	" "	Paraffin Ointment	1 in 6½	1 in 6
" Glyc. Plumbi sub acet. ...	Hard and Soft Paraffin	"	1 in 10 (1890)	About 1 in 10
" Hamamelidis	Simple Ointment (1890)	Hydrous Wool Fat	1 in 2, nearly	1 in 2, nearly
" Hydrarg. ...	Lard and Prepared Suet	Lard and Prepared Suet	1 in 10	1 in 10
" Hyd. Ammoniat.	Simple Ointment	Paraffin Ointment	1 Mercury in 4½	1 in 5
" Hydrarg. Co. ...	Yellow Wax and Olive Oil	Yellow Wax and Olive Oil		

TABLE No. 9.—OINTMENTS—continued.

Name of Ointment.	Basis, 1885	Basis, 1898	Strength, 1885	Strength, 1898
Ung. Hyd. Iodid Rub.	...	Benz. Lard	1 in 28 $\frac{1}{2}$	1 in 25
" " Nit.	...	Lard and Olive Oil	1 in 15 $\frac{1}{2}$	1 in 15 $\frac{1}{2}$
" " Dil.	...	Yellow Soft Paraffin	1 in 3	1 in 5
" " Oleat.	...	Benz. Lard	...	1 in 4
" " Oxid Flav.	...	Paraffin Yellow	Not Official	1 in 50
" " Rub.	...	Paraffin Ointment Yellow	1 in 8	1 in 10
" " Subchlor.	...	Benz. Lard	1 in 6 $\frac{1}{2}$	1 in 10
" Iodi	...	Lard	1 in 31	1 in 25
" Iodoformi	...	Paraffin Ointment Yellow	1 in 10	1 in 10
" Paraffini	...	Yellow Wax	5 in 7	5 in 7
" Picis Liq.	...	Paraffin Ointment	1 in 37 $\frac{1}{2}$	1 in 25
" Plumbi Acet.	...	" "	1 in 8	1 in 10
" " Carb.	...	Paraffin Ointment Yellow	1 in 8	1 in 10
" " Iodid	...	Benz. Lard	1 in 8 $\frac{3}{4}$	1 in 10
" Potass "	...	Wax, Olive Oil, Lard	1 in 3 $\frac{3}{4}$	1 in 3 $\frac{3}{4}$
" Resinæ	...	Benz. Lard and Yellow Wax	1 to 2 about	1 to 9 $\frac{3}{4}$ about
" Staphisagriæ	...	Benz. Lard	1 in 5	1 in 10
" Sulphuris	...	" "	1 in 15 $\frac{1}{2}$	1 in 25
" " Iodid	...	Lard	1 in 63	1 in 50
" Veratrinæ	...	Benz. Lard	1 in 6 $\frac{1}{2}$	1 in 6 $\frac{1}{2}$
" Zinci	...	Soft Paraffin	1 in 2, 10 % Oleate	1 in 2, True Oleate
" " Oleas	...			

be prepared white uniformly so, whilst those in which the medicament is not white are directed to be made with yellow Paraffin.

Lard is used as a basis for the alkaloidal ointments of Aconitine, Atropine, Cocaine and Veratrine, and also enters into the composition of four other ointments.

Benzoated Lard forms the basis of 13 ointments, whilst **Adeps Lanæ** is employed for the preparation of Ung. Conii and Ung. Hamamelidis.

These two Ointments were official in the Addendum 1890, but the basis of the latter in that work was simple Ointment.

A table showing a comparison of the bases and strengths of the Ointments of the two Pharmacopœias is included (pp. 36-37).

OLEATES.

The two Oleates official in the 1885 Pharmacopœia, prepared by the Solution of Oxides of Mercury and Zinc respectively in Oleic Acid, have been replaced by true Oleates prepared by double decomposition. The Oleate of Mercury is official and appears under Hydrargari Oleas, and is prepared by the precipitation of hard soap with Mercuric Chloride, whilst the Oleate of Zinc only appears as forming part of the Ointment of Oleate of Zinc.

OXYMELS.

The two Oxymels of the 1885 Pharmacopœia are still official. The simple Oxymel is, however, directed to be reduced to a definite specific gravity of 1.32.

Oxymel Scillæ.—The directions include the preparation of a stronger vinegar of Squills than the official one, and the addition of clarified Honey to this in such quantity as to produce a specific gravity of 1.32°.

It is obvious by this amended monograph that the proportion of Acetic Acid will be made practically constant, and not doubtful as before.

PILLS.

One new Pill only is included—that of Sulphate of Quinine; whilst three are omitted—Pil. Conii Co., Pil. Ferri Co., and Pil. Ferri Iodid.

Pil. Asafœtida Co. is now described as Pil. Galbani Co., presumably to prevent confusion with Pil. Aloes et Asafœtida. The alterations in these pills are not important.

Pil. Aloes et Ferri.—1 oz. exsiccated Ferrous Sulphate is now ordered in place of 1½ ozs. crystals.

Pil. Aloes et Myrrh.—It will be noted that the Saffron is omitted.

Pil. Cambogæ Co.

Pil. Galbani Co.

Pil. Ipecac. cum Scillæ.

Pil. Plumbi cum Opio.

Pil. Saponis Co.

Pil. Scillæ Co.

} The excipients have been altered in these pills, and Syrup of Glucose substituted in each case.

Pil. Ferri (-Blaud).—The formula adopted in the Addendum, 1890, has been replaced by one in which dried Ferrous Sulphate and dried Carbonate of

Sodium are used in place of crystals of Sulphate of Iron and hydrated Carbonat of Potassium respectively.

The pill should be a satisfactory one, and, with the possible omission of Glycerine, work satisfactorily on a large scale.

Pil. Hydrarg. Subchlor. Co.—The excipient has been slightly altered, and Alcohol added as well as Castor Oil.

Pil. Phosphori.—The formula has been considerably altered, the phosphorus in solution in bisulphide of carbon being mixed with white wax, lard and Kaolin, instead of Balsam of Tolut and wax; but the one now adopted appears to be open to some of the objections of insolubility that were raised against that of 1885. It should be noted that the strength has been considerably increased, and is now 2 per cent., and the dose of the mass reduced from 2 to 4 grains to 1 to 2 grains.

Pil. Quininæ Sulph.—The addition of Tartaric Acid is required, and is one that is frequently adopted in manufacturing on a large scale, being found to be more convenient in practice than the addition of Sulphuric Acid.

Pil. Rhei Co.—The pill is not of necessity to be prepared with English Peppermint Oil, and the excipient has been altered to Syrup of Glucose in place of Glycerine.

Pil. Scammon. Co.—Three fluid ounces of Tincture of Ginger are now employed in place of 1 oz. strong Tincture and 2 ozs. Rectified Spirit as formerly, that is to say, the preparation is slightly weaker in Ginger.

PLASTERS.

Three of the Plasters official in the 1885 Pharmacopœia are omitted, whilst Emplast. Menthol, which was introduced in the Addendum, 1890, finds a place. It is never used, and might well have been omitted.

Emp. Belladonnæ.—This preparation is now to be prepared from the standardized Liquid Extract and with resin plaster, instead of a mixture in equal parts of resin and soap plaster, and contains 0.5 per cent. of alkaloids.

The advantages of the standardization of the preparation have already been alluded to.

Emp. Calefaciens.—The Plaster is the same with the one exception that the Expressed Oil of Nutmeg is now omitted.

Emp. Picis.—In this Plaster also the Expressed Oil of Nutmeg is now omitted.

Emp. Resinæ and Emp. Saponis have been slightly altered by the substitution of hard soap for curd.

POULTICES.

The five Poultices in the British Pharmacopœia, 1885, are now omitted.

POWDERS.

The number of powders official in the 1885 Pharmacopœia has been increased by one—Pulv. Sodæ Tartaratæ Effervesc. (Seidlitz powder) official in the 1890 Addendum.

Pulv. Cretæ Aromat.—Saffron has been omitted.

Pulv. Glycyrrhizæ Co.—Decorticated Liquorice must now be employed. It was not ordered in the 1885 Pharmacopœia, but has no doubt been used commercially during the greater part of the time that that work has been the recognized standard.

SOLID EXTRACTS.

In no class of preparations have so many omissions been made as in the Solid Extracts, there being fifteen omissions and only one addition to those contained in the Brit. Pharm. of 1885.

The one addition consists of Extract of *Strophanthus*, and the omissions are for the most part preparations but little in use. Exception, however, might be taken to the exclusion of Extract Aloes Soc., Extract Conii, Extract Lupuli, Extract Papaveris. It is also certain that objection might be taken to the inclusion again of Extract Jalapæ and Extract Kramerizæ. With reference to the former there seems little use in retaining the preparation, which only differs from Jalap resin in containing a certain proportion of inert saccharine matter, whilst Extract Kramerizæ is never used and never prescribed, and is evidently only retained for the preparation of the lozenges.

Extract Aloes Barb.—It is now stated that this shall be evaporated at a temperature not exceeding 140° F., and this makes a considerable difference to the nature of the preparation produced. The greater proportion of extract yielded by Barbadoes Aloes than that yielded by the Socotrine variety has led to the omission of the latter.

Extract Belladonnæ Alcoholic.—This has already been referred to under new Standardized preparations, and the intention of its introduction is excellent, and it would have been well, as already stated, to have excluded the green extract altogether.

The extract contains 1 per cent. of alkaloids and is practically one-third of the strength of a normal extract obtained from good quality Belladonna root in the process of the B.P. 1885.

Extract Cascara.—This extract is now directed to be prepared with water in place of proof spirit, with instructions that it shall be evaporated to dryness.

Extract Colchici.—It will be noticed that a considerable alteration has been made in the dose of this preparation. In the British Pharmacopœia, 1885, it was given as $\frac{1}{2}$ to 2 grains; now $\frac{1}{4}$ to 1 grain. The preparation is in no wise altered.

Extract Coloc Co.—Shaved soap is directed to be used in place of powder, and Extract of Barbadoes Aloes in place of Socotrine.

Extract Ergotæ.—This preparation replaces the Ergotin of the Brit. Pharm., 1885, and is the complicated process devised by Keller, official in the Swiss Pharmacopœia. The addition of Hydrochloric Acid is made to remove sclererythrin. It is essential that the process should be followed in its entirety, and, I believe, the product will be found to be infinitely superior to that hitherto met with in trade in this country, which in the majority

of cases was not made by the Pharmacopœial instructions, but by exhaustion of the Ergot with weak Spirit.

Extract Euonymi Siccum.—Complaints have been frequent about the difficulty of drying this preparation so as to produce a satisfactory powder. If the sugar of Milk was added during the process of drying, the extract was so acid as to cause the inversion of the lactose and great difficulty in the subsequent powdering, and it was not easy to reduce the extract to such a state of dryness that it could be powdered with ease with the sugar of Milk. These difficulties are now overcome by the introduction of Phosphate of Calcium in place of sugar of Milk, and the alteration seems in every respect a satisfactory one.

Extract Jalapæ.—This preparation, notwithstanding over 90 per cent. of the Medical men to whom the enquiry was addressed replied that they never prescribed it, has been retained.

Extract Nucis Vom.—The alteration in the standardization of this extract has already been referred to under "Standardization." The extract is prepared with a solvent of practically the same strength as in the Pharmacopœia, 1885, and its strength adjusted with sugar of Milk, so as to contain 5 per cent. of Strychnine. The extract is practically two-thirds the strength of the Brit. Pharm., containing 15 per cent. of total alkaloids. The variation, however, in the relative proportions of Strychnine and Brucine in different varieties of Nux Vomica, has already been referred to.

Extract Opii.—This extract is retained unaltered. It is found in practice extremely difficult to obtain an extract containing 20 per cent. of Morphine from an Opium containing in the first instance 10 per cent., this difficulty appearing to be due to decomposition of alkaloid during the process of concentration.

Extract Physostigmatis.—This extract, which has been very little employed, doubtless on account of its potency and extreme danger, has now been diluted with three parts of sugar of Milk—that is to say, made one-quarter of its strength in the Brit. Pharm., 1885. The dose has been proportionately reduced.

Extract Rhei.—The alcoholic strength of the solvent employed in this extract has been considerably increased, and the instructions are that the concentration of the extract is to be carried to dryness.

Extract Stramonii.—This extract is still to be prepared from the seeds, although the Tincture is to be prepared from the leaves. The relative alkaloidal value of these two parts of the plant has been commented on by Farr and Wright.

The instructions for the prior percolation of the seeds with Ether are now omitted. I am not aware that this process has been followed, as it has been found unnecessary on a commercial scale, and was the subject of a communication to the Pharmaceutical Conference by Gerrard.

Extract Strophanthi.—This, the only new solid extract, is to be prepared by percolation with Ether, and subsequent extraction with 90 per cent. alcohol. Its strength is equivalent to one part of seeds in two parts of finished extract in powder and the diluent sugar of milk. It will be noted that although

90 per cent. alcohol is used in the preparation of the extract, 70 per cent. alcohol is used in the case of the Tincture. This will be subsequently referred to.

SPIRITS.

One Spirit only is official that was not contained in the 1885 Pharmacopœia, that of Anise, and this has been substituted for the Essence of Anise then official.

Proof Spirit.—Spirit Tenuior has been omitted. The Spirits of other strengths used for Tinctures, &c., are described under *Alcohol*.

Spirit Etheris Co.—Directions are now given for the preparation of the Ethereal Oil with which this substance is prepared, but no proportion of Ethereal Oil produced by the re-action is indicated, and it is doubtful whether the preparation as set out can be prepared by other than other manufacturers. There have been considerable difficulties in the way of the sale of Ol. Æthereum on account of its contamination with Methyl compounds.

Spirit Etheris Nit.—The preparation is only altered as regards the specific gravity (now '838—'842) due to the stronger Spirit employed, but slightly amended instructions are given for its preparation, a proportion of the alcohol being put to receive the distillate. This method has probably been always adopted on a manufacturing scale. A test is added for the limit of Aldehyde. This aldehyde indication is useful in distinguishing between Spirit Etheris Nit. prepared by the Pharmacopœial process, and that prepared by the interaction of Spirit, Sulphuric Acid, and Nitrate of Sodium.

The limit of variation of the strength of the preparation has now been somewhat modified, and the requirement that it should yield at least $6\frac{1}{4}$ volumes but not more than 7 of Nitric Oxide gas, and not less than five times its volume (equal to 2 per cent. of Ethyl Nitrite), is indicated. An absolute minimum of $1\frac{3}{4}$ per cent. is fixed.

It will be remembered that in the 1885 Pharmacopœia, the lower limit was somewhat indefinitely stated as "it should yield not much less than five times its volume." Finally it should be noted that the synonym Sweet Spirit of Nitre is now included.

Spirit Ammon Aromat.—The specific gravity has been slightly altered in accordance with the slightly stronger alcohol now official, and is now '888—893. The description now contains the words "nearly colourless when first prepared, but liable to darken slightly." The difficulty in the matter of darkening has been got over by manufacturers by using either so-called Ammonia-proof Spirit or by distilling the Spirit before use with Ammonia.

The test for the estimation of the Carbonate is somewhat improved by the instruction to warm the liquid for the precipitation of the Sulphate of Barium.

Spirit Armoraciæ Co.—The final spirit strength is precisely the same as results from the formula of the previous Pharmacopœia.

Spirits of Anise, Cajuput, Camphor, Cinnamon, Juniper, Lavender, Peppermint, Nutmeg, Rosemary, are now prepared of the strength of one fluid part of oil made up to 10 fluid parts with 90 per cent. alcohol.

SUPPOSITORIES.

Two suppositories are included that were not official in the 1885 Pharmacopœia—Acid Carbolic and Belladonna, whilst four are omitted. The omissions include the three suppositories hitherto made with the soap basis, namely, Carbolic Acid, Tannic Acid, and Morphine.

The instructions now given are somewhat more satisfactory than in previous Pharmacopœias, no definite weight of Oil of Theobroma being taken, but a sufficient quantity to fill a mould containing from 15 to 16 grains of Oil of Theobroma, thus obviating the error due to difference of specific gravity of medicament, &c.

Suppositoria Acid Carbolic.—Now prepared with a small proportion of White Beeswax, in addition to the Oil of Theobroma.

Suppositoria Belladonnæ.—The Suppositories are now prepared from the alcoholic extract of the root, and contain $\frac{1}{2}$ grain of Extract in each, equivalent to 1-60th of a grain of the alkaloids of Belladonna root. It is well that there is now an official form for these Suppositories, which have hitherto either been made from the green extract, from an alcoholic extract of the leaves, or from the root extract.

Suppositoria Morphinæ.—One of the important alterations of the British Pharmacopœia, the strength being reduced from $\frac{1}{2}$ grain in each to $\frac{1}{4}$ (quarter) grain.

SYRUPS.

Seven Syrups have been included that were not official in the 1885 Pharmacopœia; two of these, Syrup Aromaticus and Syrup Cascara Aromat, have already been alluded to (see Elixirs).

Three Syrups have been omitted, Syrup Ferri Subchlor, which was included in the Addendum of 1890 and which has been very little used, Syrup Mori, and Syrup Papaveris. The last-named is very extensively used, although probably as a household remedy—very much more, at any rate, than some of those which have been allowed to remain official, such as Syrup of Orange Flowers, Syrup Hemidesmi and Syrup Rosæ. Many will no doubt be disappointed at the non-inclusion of the Syrups corresponding to Fellows' and Parrish's Syrup respectively.

Syrup Aromaticus.—This has already been alluded to as somewhat similar to the simple Elixir of the B.P.C. Formulary Committee.

Syrup Calcii Lactophosph.—The preparation included is precisely the same as that official in the United States Pharmacopœia.

Syrup Cascara Aromaticus.—Identical with that contained in the B.P.C. Formulary as Elixir Cascara.

Syrup Codeine.—The formula is a new one, and is prepared from Phosphate of Codeine, and not by the process official in the B.P.C. Formulary, viz., by dissolving Codeine in proof spirit and then adding to syrup.

Syrup Ferri Iodid.—The strength of the preparation is very considerably increased. It now contains nearly $5\frac{1}{2}$ grains in one fluid drachm, in place of $4\frac{3}{4}$ grains as formerly. The test for the estimation of Iodide will not

be found by any means a satisfactory one, more especially if an excess of Carbonate of Sodium is used for the estimation.

Syrup Ferri Phosph.—The process has been altered, and the method of dissolving iron wire in concentrated Phosphoric Acid followed, instead of that of precipitation of Solution of Sulphate of Iron with Phosphate of Sodium. It will be noted also that the acidity of the preparation has been very considerably reduced. The alteration will be a decided improvement in taste, but will make probably some little difference in the dispensing of prescriptions where free Phosphoric Acid has been of service in keeping other substances in solution.

Syrup Ferri Phosph., cum Quinina et Strychnina.

—The title of the preparation should be noted, and it has evidently been so worded, as the Quinine is not present as Phosphate. The difficulty of obtaining uniform results with a Phosphate in consequence of the different relative Quinine values of the different Phosphates has been alluded to on more than one occasion. The preparation should prove in every way satisfactory.

Syrup Glucosi.—This syrup has been introduced for certain pill masses.

Syrup Limonis.—A very considerable advance on the preparation of the 1885 Pharmacopœia. A strong Tincture is directed to be in the first instance made by digesting one part of lemon peel in sufficient alcohol to produce two fluid parts. The addition of this to the lemon juice and sugar gives a highly satisfactory lemon flavour. The specific gravity has been reduced to about 1·300.

Syrup Pruni Virg.—Now official for the first time, the formula of the B.P.C. Committee having been adopted.

Syrup Scillæ.—The specific gravity has been considerably reduced, and will now be found to be about 1·325, instead of 1·345 as formerly. Considerable difficulty was found owing to the crystallization of the Syrup of the 1885 Pharmacopœia.

Syrup Sennæ.—Now directed to be made by re-percolation of Senna in No. 5 powder. It will be noted that the quantity of sugar is very considerably reduced, and the product will be found to have a low specific gravity, probably not more than 1·275.

Syrup Tolu.—The alteration in the English name will be noted. Now called Syrup of Balsam of Tolu.

Syrup Zingiberis.—In consequence of the omission of the strong Tincture of Ginger, the preparation is now made by the preparation of a strong Tincture of Ginger, 1–2 (Tinct. Zingib. Fort. B.P., 1885), one part of which added to 19 fluid parts of Syrup makes the required product.

TINCTURES.

The Tinctures have been re-arranged altogether, having in view two objects as stated in the Preface; firstly, to obtain a greater uniformity of dose, and secondly, to select for each Tincture the menstruum best adapted to extract the active constituents of the drug or drugs used in its preparation.

The doses have been arranged so that in the case of the potent Tinctures they shall be free from 5 to 15 minims, and in the case of the less potent ones from one-half to 1 fluid drachm. It has been necessary, however, in a few cases to reduce the strength of the Tinctures, whilst in several an increase has had to be made in the proportion of active principles.

The alcohols used as the menstrua in these Tinctures have already been described under Alcohol. There can be no question that the method of varying the strength of alcohols is a very considerable advance on the two strengths of Spirit of the previous Pharmacopœia, and in most instances they will be found to follow the lines suggested by Farr and Wright in their important series of papers on the subject.

Three new Tinctures have been added: Tinct. Ergot Ammon; Pruni Virg; and Quillaia; whilst the **omissions** include Tinct. Aurantii Cort. (which has been replaced by Tincture of Fresh Orange Peel), Chloroform Co., Ergot, Ferri Acet, Gallæ, Laricis, Lobelia, Sabinæ, Valerianæ, Veratri Virid, Zingib Fort.

The names in some instances also have been slightly altered. **The processes** for the preparation of these Tinctures now come under practically three headings:—Those in which the process of percolation is followed, the final volume of the Tincture being adjusted. Secondly, the process of maceration, in which the solid ingredients are macerated in the whole of the menstruum for seven days in a closed vessel, the liquids strained, the marc pressed, and the liquids mixed and filtered, if necessary. In this process no final adjustment of the bulk being directed. These processes are contained in the Appendix.

Certain of the Tinctures are directed to be prepared by the process of maceration and filtration, sufficient of the menstruum being passed over the filter to make the bulk of a definite volume. In the case of some of the Tinctures prepared by maceration, the process appears of doubtful advantage, and although in not making up the final bulk of the Tinctures prepared by this process the precedent of the French Codex has been followed, it is very doubtful whether, so far as uniformity is concerned, the object would not have been better attained by such direction as include a final adjusting of the bulk of the Tincture. Tinctures prepared by maceration must to a certain extent differ according to the bulk operated upon and the power of the presses employed for the expression of the marcs.

A table is appended giving the strength of the menstrua employed, together with the proportion of the chief ingredient and the dose. It should be noted, however, that in some cases the alcoholic strength of the product differs materially from the original alcoholic strength of solvent employed, due to the addition of Ammonia, Glycerine and other liquids, and the proportion of active ingredient is only stated approximately in the case of those Tinctures made by the maceration process.

Some few comments are necessary on the Tinctures:—

Tinct. Aloes.—It will be noted that Liquid Extract of Liquorice replaces the equivalent of solid extract, and that it is to be taken by weight.

TABLE NO. 10.—TINCTURES.

Name of Tincture.	Proportion of Active Ingredient.		Strength of Menstruum		Dose.	
	1885.	1898.	1885.	1898.	1885.	1898.
Tinct. Aconiti ...	1 in 8	1 in 20	Rect. Spirit.	70 per cent.	5 to 15 min.	5 to 15 min.
" Aloes ...	1 in 40	1 in 40	Proof	45 "	1 to 2 drms.	$\frac{1}{2}$ to 1 fl. drm.
" Arnicæ ...	1 in 20	1 in 20	Rect.	70 "	$\frac{1}{2}$ to 1 drm.	...
" Asafoetida ...	1 in 8	1 in 5	"	70 "	$\frac{1}{2}$ to 1 drm.	$\frac{1}{2}$ to 1 fl. drm.
" Aurantii ...	3 in 10	1 in 4 (about)	"	90 "	1 to 2 drms.	$\frac{1}{2}$ to 1 drm.
" Belladonæ ...	1 in 20	Standardized.	Proof	60 "	5 to 20 min.	5 to 15 min.
" Benzoini Comp. ...	1 in 10	1 in 10	Rect.	90 "	$\frac{1}{2}$ to 1 drm.	$\frac{1}{2}$ to 1 drm.
" Buchu ...	1 in 8	1 in 5	Proof	60 "	1 to 2 drms.	$\frac{1}{2}$ to 1 drm.
" Calumbæ ...	1 in 8	1 in 10 (about)	"	60 "	$\frac{1}{2}$ to 2 drms.	$\frac{1}{2}$ to 1 drm.
" Camphoræ ...	Opium.	Opium.	"	"	"	"
" Cannabis Indiciæ ...	1 in 240	1 in 240	"	60 "	15 to 60 min.	$\frac{1}{2}$ to 1 drm
" Cantharidis ...	1 in 20 (Ext.)	1 in 20	Rect.	90 "	5 to 20 min.	5 to 15 min.
" Capsici ...	1 in 80	1 in 80 (about)	Proof	90 "	5 to 20 min.	5 to 15 min.
" Cardamomi Co. ...	1 in 27	1 in 20 (about)	Rect.	70 "	10 to 20 min	5 to 15 min
" Cardamomi Co. ...	1 in 80	1 in 80 (about)	Proof	60 "	$\frac{1}{2}$ to 2 drms.	$\frac{1}{2}$ to 1 drm.
" Cascarillæ ...	1 in 8	1 in 5	"	70 "	$\frac{1}{2}$ to 2 drms.	$\frac{1}{2}$ to 1 drm.
" Catechu ...	1 in 8	1 in 5 (about)	"	60 "	$\frac{1}{2}$ to 2 drms.	$\frac{1}{2}$ to 1 drm.
" Chiratzæ ...	1 in 8	1 in 10	"	60 "	$\frac{1}{2}$ to 2 drms.	$\frac{1}{2}$ to 1 drm.
" Chlorof. et Morphinæ Co	1 in 480	1 in 110	...	...	5 to 10 min.	5 to 15 min.
" Cimicifugæ ...	Morph. Hydro.	abt. Morph. Hydro	"	"	"	"
" Cinchonæ ...	1 in 8	1 in 10	...	60 "	15 to 60 min.	$\frac{1}{2}$ to 1 fl. drm.
" Co. ...	1 in 5	Standardized.	Proof Spirit.	70 "	$\frac{1}{2}$ to 2 drms.	$\frac{1}{2}$ to 1 drm.
" Cinnamomi ...	1 in 10	"	"	70 "	$\frac{1}{2}$ to 2 drms.	$\frac{1}{2}$ to 1 drm.
" Cocci ...	1 in 8	1 in 5	Rect.	70 "	$\frac{1}{2}$ to 2 drms.	$\frac{1}{2}$ to 1 drm.
" Colchici Seminum ...	1 in 8	1 in 10 (about)	Proof	45 "	...	5 to 15 min.
" Conii ...	1 in 8	1 in 5	"	45 "	10 to 30 min.	5 to 15 min.
" "	1 in 8	1 in 5	"	70 "	20 to 60 min.	$\frac{1}{2}$ to 1 drm.

TABLE No. 10.—**TINCTURES** (*continued*).

Name of Tincture.	Proportion of Active Ingredient.		Strength of Menstruum.		Dose.	
	1885.	1898	1885.	1898.	1885.	1898.
Tinct. Croci ...	...	...	Proof Spirit	60 per cent.	...	5 to 15 min.
" Cubebæ ...	1 in 20	1 in 20 (about)	Rect. "	90 "	$\frac{1}{2}$ to 2 drms.	$\frac{1}{2}$ to 1 drm.
" Digitalis ...	1 in 8	1 in 5	Proof "	60 "	10 to 30 min	5 to 15 min.
" Ergotæ Am. ...	Not official.	1 in 4	...	60 "	...	$\frac{1}{2}$ to 1 drm.
" Ferri Perchloridi ...	1 in 4 (Liq.)	1 in 4 (Liq.)	Rect. Spirit and water	90 "	10 to 30 min.	5 to 15 min.
" Gelsemii ...	1 in 8	1 in 10	Proof "	60 per cent.	5 to 20 min.	5 to 15 min.
" Gentianæ Co. ...	1 in 13 $\frac{1}{2}$	1 in 10 (about)	" "	45 "	$\frac{1}{2}$ to 2 drms.	$\frac{1}{2}$ to 1 drm.
" Guaiaci Ammon. ...	1 in 5	1 in 5	Sp. Ammon. Arom.	90 "	$\frac{1}{2}$ to 1 drm.	$\frac{1}{2}$ to 1 drm.
" Hamamelidis ...	1 in 10 (1890)	1 in 10	Proof Spirit	45 per cent.	5 to 60 min.	$\frac{1}{2}$ to 1 drm.
" Hydrastis ...	1 in 10 (1890)	1 in 10	" "	60 "	20 to 60 min.	$\frac{1}{2}$ to 1 drm.
" Hyoscyami ...	1 in 8	1 in 10	" "	45 "	$\frac{1}{2}$ to 1 drm.	$\frac{1}{2}$ to 1 drm.
" Iodi ...	1 in 40	1 in 40	Rect. "	90 "	5 to 20 min	2 to 5 min.
" Jaborandi ...	1 in 4	1 in 5	Proof "	45 per cent	$\frac{1}{2}$ to 1 drm	$\frac{1}{2}$ to 1 drm.
" Jalapæ ...	1 in 8	Standardized	" "	70 "	$\frac{1}{4}$ to 2 drms.	$\frac{1}{2}$ to 1 drm.
" Kino ...	1 in 10	1 in 10	Spt. & Glyc	90 per cent.	$\frac{1}{2}$ to 2 drms.	$\frac{1}{2}$ to 1 drm.
" Krameriæ ...	1 in 8	1 in 5	Proof Spirit.	60 per cent	to 2 drms	$\frac{1}{2}$ to 1 drm.
" Lavandulæ Co... (Oil)	1 in 213	1 in 213 (about)	Rect. "	90 "	$\frac{1}{2}$ to 2 drms.	$\frac{1}{2}$ to 1 drm.
" Limonis ...	1 in 8	1 in 4 (about)	Proof "	90 "	$\frac{1}{2}$ to 2 drms.	$\frac{1}{2}$ to 1 drm.
" Lobeliæ Æthereal ...	1 in 8	1 in 5	Spirit Ether.	Spirit Ether	10 to 30 min.	5 to 15 min.
" Lupuli ...	1 in 8	1 in 5 (about)	Proof Spirit.	60 per cent	$\frac{1}{2}$ to 2 drms.	$\frac{1}{2}$ to 1 drm.
" Myrrhæ ...	1 in 8	1 in 5	Rect. "	90 "	$\frac{1}{2}$ to 1 drm.	$\frac{1}{2}$ to 1 drm.
" Nucis Vom. ...	1 gr. Alkaloids in 1 oz.	1 gr. Strychnine in 1 oz.	" " and water,	90 per cent.	10 to 20 min	5 to 15 min.

TABLE No. 10.—TINCTURES (continued).

Name of Tincture.	Proportion of Active Ingredient.		Strength of Menstruum.		Dose.	
	1885.	1898.	1885.	1898.	1885.	1898.
Tinct. Opii	5 to 40 min.	20 to 30 min.
" Opii Ammon.	$\frac{1}{2}$ to 1 drm.	$\frac{1}{2}$ to 1 drm.
" Podophylli	15 to 60 min.	5 to 15 drm.
" Pruni Virg.	$\frac{1}{2}$ to 1 fl. drm
" Pyrethri
" Quassiae	$\frac{1}{4}$ to 2 drms.	$\frac{1}{4}$ to 1 drm.
" Quillaie	$\frac{1}{4}$ to 1 drm.
" Quiniae	$\frac{1}{2}$ to 2 drms.	$\frac{1}{2}$ to 1 drm.
" " Ammon.	$\frac{1}{2}$ to 2 drms	$\frac{1}{2}$ to 1 drm.
" Rhei Co.	1 drm. to 1 oz.	$\frac{1}{4}$ to 4 drms.
" Scillae	10 to 30 min.	5 to 15 min.
" Senega	$\frac{1}{2}$ to 2 drms.	$\frac{1}{2}$ to 1 drm.
" Sennae Co.	1 to 4 drms.	$\frac{1}{2}$ to 4 drms.
" Serpentariae	$\frac{1}{2}$ to 2 drms.	$\frac{1}{2}$ to 1 drm
" Stramonii	10 to 30 min.	5 to 15 min.
" Strophanthi	2 to 10 min.	5 to 15 min.
" Sumbul	10 to 30 min.	$\frac{1}{2}$ to 1 drm.
" Tolutana	20 to 40 min.	$\frac{1}{2}$ to 1 drm.
" Valerianae Am.	$\frac{1}{2}$ to 1 drm.	$\frac{1}{2}$ to 1 drm.
" Zingiberis	15 to 60 min.	$\frac{1}{2}$ to 1 drm.

Tinct. Arnica.—The colour of the Tincture as prepared with the 70 per cent. alcohol will not be so decidedly green as when prepared with rectified Spirit.

Tinct. Aurantil.—This is now prepared from the fresh peel by maceration in 90 per cent. alcohol and the product will be found to be in excess of one pint.

Tinct. Belladonnæ.—Now prepared from the Liquid Extract. It should be noted that the Pharmacopœial quantity is for the production of 30 fluid ounces.

Tinct. Chloroform et Morphinae Co.—This preparation differs entirely from the corresponding preparation of the 1885 Pharmacopœia, and is more than four times stronger in proportion of Morphine Hydrochloride than the corresponding preparation of the Brit. Pharm. 1885.

Tinct. Cinchonæ Co.—Directions are now given for the adjustment of this tincture according to alkaloidal strength.

Tinct. Ergotæ Ammon.—Introduced for the first time, and not prepared by percolation with Spirit Ammon. Aromat. as in the Brit. Pharm. Conference Formulary. It contains no volatile oils or Carbonate of Ammonia.

Tinct. Gentian Co.—It will be noted that the proportion of Gentian is increased from $1\frac{1}{2}$ to 2 ozs. to a pint.

Tinct. Guaiaci Ammon. } It will be noted that these two Tinctures
Tinct. Valerian Ammon. } are no longer prepared with Spirit Ammon. Aromat., but with Ammonia and Alcohol and Oils of Nutmeg and Lemon dissolved in Tincture. It should be noted that the proportions of Oil of Nutmeg and Oil of Lemon are in reverse proportion to that in which they existed in Spirit Ammon. Aromat., the Nutmeg predominating.

Tinct. Krameriaæ.—The tincture made with Para Rhatany will make a bright mixture with water, the Peruvian a turbid one.

Tinct. Limonis.—Still made from the fresh peel, but the strength of lemon peel is twice as great as that of the 1885 Pharmacopœia. The product of this Tincture will exceed 1 pint.

Tinct. Nucis Vom.—Prepared from the standardized Liquid Extract, and of definite Strychnine strength, namely, 1 grain in 1 oz. This was the proportion of total alkaloids in the Tincture of the 1885 Pharmacopœia.

Tinct. Opii.—Now prepared from Opium by maceration with water and subsequent addition of alcohol 90 per cent. in equal proportion. This does not quite make an alcohol of 45 per cent. strength. The strength of the Tincture is finally adjusted, and so does away with the possibility of error which always resulted in the preparation of a Tincture according to the 1885 Pharmacopœia.

Tinct. Pruni Virg.—The volume of this tincture is not now adjusted as it was in the Formula of the Brit. Pharm. Conf. Formulary.

Tinct. Quillaiaæ.—It will be noted this Tincture is 1 oz. to the pint, and not 2 ozs. to a pint, as was the strength prescribed under Liquor Picis Carb. in the Brit. Pharm. Conf. Formulary.

Tinct. Quinine and Ammoniated Tincture of Quinine.—The proportion of Quinine has been slightly increased from 1 in 60 to about 1 in 50.

Tinct. Opii Ammon.—Saffron has been omitted and the same proportion of weaker Solution of Ammonia has been substituted for the stronger one.

Tinct. Podophylli.—The proportion of Podophyllin resin has been doubled.

Tinct. Rhei Co. contains no saffron, but 10 per cent. of glycerine.

Tinct. Stramonii.—Now prepared with leaves in place of the seeds.

Tinct. Strophanthi.—Half the strength of the corresponding preparation of the Addendum, 1890. No prior percolation of the seeds with Ether is now directed, and a Tincture prepared with 70 per cent. alcohol should mix bright with water.

VINEGARS.

The Monograph for Acetum—Malt Vinegar—is omitted, following the general method for the omission of dietetic articles, whilst Acetum Ipecac. is now official, in addition to the preparations contained in the Pharmacopœia, 1885, having been introduced in the Addendum, 1890.

Acetum Cantharidis.—The preparation is slightly altered, the solvent now adopted being Acetic Acid of 50 per cent. strength, and the process one of extraction in the cold in place of by digestion at a temperature of 200° F. (93·3° C.). It is doubtful whether the process of the 1885 Pharmacopœia was ever followed, at any rate, on a large scale, as considerable difficulty exists in carrying out directions.

Acetum Ipecac.—This differs from the preparation official in the Addendum, 1890, by being prepared from a standardized liquid extract, and by containing also a small quantity of additional alcohol. There is an advantage, no doubt, in the preparation being standardized, although it has been shown on more than one occasion that Acetic Acid completely extracts the alkaloids of Ipecacuanha.

Acetum Scillæ is now directed to be made by the maceration process official for Tinctures, with the addition that the bulk is to be finally adjusted.

WATERS.

No alteration has been made in the number of waters official in the new British Pharmacopœia, although there seems but little reason for the inclusion of Aq. Fœniculi. It is, so far as I know, rarely prescribed.

Aquæ Camphoræ.—This preparation is now made of a definite strength, namely, 70 grains to a gallon, and not of uncertain strength according to temperature and other conditions as formerly.

Aquæ Chloroformi.—The preparation is only half the strength of that of the Brit. Pharm., 1885. A good alteration, as the water of the 1885 edition was too strong for use undiluted.

Aquæ Cinnamon.—The quantity has been reduced from 20 ozs. to 1 lb. per gallon. The water was always an exceedingly cloudy one, and usually deposited globules of oil.

Aq. Destillata.—The most exacting tests have been included for the absence of more than traces of organic matter and Ammonia. It will not be found easy to comply with these requirements, other than by the employment of special distillatory apparatus.

Aq. Menth Pip and **Aq. Menth Virid.**—The strengths have been slightly reduced, namely, from 90 minims to 77 minims of oil per gallon. The waters are now of half the strength of those in the United States Pharmacopœia prepared by rubbing down the oils with Phosphate of Calcium.

Aq. Pimentæ.—The Pimento has been reduced from 14 ozs. to 8 ozs. per gallon.

WINES.

Three of the Wines official in the 1885 Pharmacopœia have been omitted—those of Aloes, Opium and Rhubarb.

The alterations in those retained are not important, and are briefly :—

Vinum Antimoniale.—The Tartarated Antimony is now directed to be dissolved in water before addition to the Sherry.

Vinum Aurantii.—The requirement that the Wine shall be made in Britain is omitted.

The percentage of alcohol remains the same, except that a definite statement is now made that the alcohol is to be taken by volume. This may or may not have been intended in the 1885 Pharmacopœia. A test has been added for the absence of Salicylic Acid. Slight reactions are allowed for Sulphites, Sulphurous Acid being the preservative usually employed for this wine.

Vinum Colchici.—The Wine is directed to be made by the maceration process, and the volume not finally adjusted as in the 1885 Pharmacopœia.

Vinum Ipecacuanhæ.—Now directed to be prepared from the standardized Liquid Extract by dilution with Sherry 1 to 19.

The preparation has been already alluded to under standardization, and it will be found to be very much more active than that made by the process of the 1885 Pharmacopœia from the dried Acetic Extract. The loss of alkaloid in drying the Acetic Extract has been very frequently commented on.

Vinum Quininae.—Now prepared by the addition of Hydrochloride of Quinine in place of Sulphate of Quinine and Citric Acid as formerly.

Vinum Xericum.—The percentage of alcohol has been reduced from 17 per cent. to 16 per cent., the statement being made that it is to be taken by volume. A test for the absence of Salicylic Acid is also included. There is no necessity for a wine containing this percentage of alcohol to contain any preservative whatever.



LONDON :

PRINTED BY GEORGE BERRIDGE & Co.

179 & 180, UPPER THAMES STREET.

LIBRARY

SCHOOL OF PHARMACY
UNIVERSITY OF LONDON

